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Northwestern Hawaiian Islands  
Coral Reef Ecosystem Reserve  
Draft Reserve Operations Plan

DRAFT  
February 2002

U.S. Department of Commerce  
National Oceanic and Atmospheric Administration  
National Ocean Service





## About This Document

This document is the operations plan for the Northwestern Hawaiian Islands (NWHI) Coral Reef Ecosystem Reserve. This plan has been prepared by the National Oceanic and Atmospheric Administration and will serve as the primary management document of the Reserve pending the completion of the designation process for the consideration of a NWHI National Marine Sanctuary. The designation process is expected to take two to three years.

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## Introduction

This draft document of the Reserve Operations Plan proposes to guide the functioning of the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve. The intended life span of this plan is approximately three years, or until such a time as the designation process for the consideration of the proposed Northwestern Hawaiian Islands National Marine Sanctuary is completed. If the Sanctuary is designated, a Sanctuary Management Plan will replace the Reserve Operations Plan. If the designation procedure determines that a Sanctuary is unwarranted or infeasible, the Reserve Operations Plan will then be updated to reflect the management, issues, and needs of the Reserve at that time.

This draft Operations Plan was prepared by the National Ocean Service of the National Oceanic and Atmospheric Administration (NOAA), in partnership with the State of Hawai'i and the U.S. Fish and Wildlife Service. It was extensively reviewed by the National Marine Fisheries Service and other parts of NOAA. The Reserve/Sanctuary Advisory Council also reviewed and provided significant comments that are reflected herein.





## Executive Summary



### Description of the Northwestern Hawaiian Islands

The expansive coral reef ecosystem of the Northwestern Hawaiian Islands (NWHI) encompasses an array of resources of natural, cultural, and historic significance unique to Hawai'i, the United States, and the world. The coral reefs are the foundation of an ecosystem that hosts a distinctive assemblage of marine mammals, fish, sea turtles, birds, algae, and invertebrates, including species that have been uniquely protected to date, and are endemic, rare, threatened, and endangered. Federally protected species include the endangered Hawaiian monk seal and threatened green sea turtle, several resident cetacean species and millions of migratory seabirds. The coral reefs and lands that support these species represent an amazing biological evolution that includes the highest percentage of marine endemism found in the world's oceans. The NWHI also serves as a bridge between several Pacific ecosystems.

These diverse natural resources are complemented by the area's rich cultural and historical significance. Numerous artifacts on Necker and Nihoa Islands establish a close relationship with the Hawaiian culture in the main Hawaiian Islands, as well as early Polynesian cultures. The area played an important role during early European exploration of the archipelago, the Pacific whaling era, as well as a pivotal role in the World War II including the Battle of Midway, considered to be the most decisive U.S. victory and the turning point of the Pacific war. With its diverse history and significant natural resources, this coral reef ecosystem provides outstanding research opportunities for biologists, ecologists, oceanographers, archaeologists, educators/interpreters, fisheries managers, historians, and the local community.

### National Significance of the Northwestern Hawaiian Islands

The world's coral reefs--considered the rain forests of the sea--are in serious decline. These important and sensitive areas of biodiversity warrant special protection. While United States waters contain approximately 3% of the world's coral reefs, 50%-70% of U.S. coral reefs are in the NWHI. The 3.5 million acres of coral reefs around the remote, mostly uninhabited NWHI are spectacular and almost undisturbed by humans. The approximately 1,200-mile stretch of atolls, volcanic islands, seamounts, banks, and shoals is unquestionably host to some of the healthiest and most extensive coral reefs in the United States. In their own right, the spectacular coral reefs and lands provide an amazing geological record of volcanic and erosive powers that have shaped this area. The area also includes a unique measure of the impacts of human alterations to pristine coral reef ecosystems and is a gauge of their ability to recover from the impacts of dredging, extensive human habitation, and military battles, among others.

This vast area supports a dynamic reef ecosystem that sustains more than 7,000 marine species, of which approximately half are unique to the Hawaiian Island chain. This incredibly diverse ecosystem is home to many species of coral, fish, birds, marine mammals, and other flora and fauna including the endangered Hawaiian monk seal and the threatened green sea turtle. In addition, this area has great cultural significance to Native Hawaiians as well as linkages to early Polynesian culture--making it additionally worthy of protection and understanding.





## History of the Reserve Designation

On December 4, 2000, Executive Order 13178 was issued, establishing the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve (Reserve), to be managed by the Secretary of Commerce (Secretary). The Reserve was established pursuant to the National Marine Sanctuaries Amendments Act of 2000 (Act). The Reserve extends approximately 1,200 nautical miles long and 100 nautical miles wide (but does not include State waters or the waters around Midway Atoll). The Executive Order contains a number of conservation measures which restrict certain activities throughout the Reserve. As part of the establishment of the Reserve, the Executive Order also created fifteen Reserve Preservation Areas (RPAs) in which all consumptive or extractive uses are prohibited, with limited exceptions.

Between December 8, 2000 and January 8, 2001, a 30-day public comment period was held on the conservation measures and whether to make the RPAs permanent. During the comment period, seven public hearings were held to accept written and oral comments. Within the allotted time, approximately 8,400 comments were received and were a mix of original and form letter comments from around the country that contained a wide range of opinions. Approximately 500 were unique comments while the overwhelming majority were generated via several form letters. Summary information on unique comments was recorded in a database, including a representative sample of each form letter. Although each form letter submission was not recorded in the database, the total number received was recorded.

Executive Order 13196 was issued on January 18, 2001, which amended Executive Order 13178 by revising certain conservation measures and making the RPAs permanent, with some modifications. A consolidated version of the two Executive Orders is found in Appendix 1. The two Executive Orders shall from this point be referred to as "the Executive Order." According to the Executive Order, the principal purpose of the Reserve and any subsequent Sanctuary is the conservation and preservation of the natural character of the NWHI. This primary management goal provides the overarching framework for all the other goals of NWHI Reserve and Sanctuary management.

The Act and the Executive Order provide that the Reserve be managed by the Secretary consistent with the purposes and the policies of the NMSA. Accordingly, the Reserve shall be managed by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS).

## Reserve/Sanctuary Advisory Council

The Executive Order and the Act directed the Secretary of Commerce to convene an advisory committee under the authority of Section 315 of the National Marine Sanctuaries Act (NMSA), to provide advice on the Reserve Operations Plan and designation and management of the Reserve as a National Marine Sanctuary. This advisory committee, which has and will continue to provide advice on both the operation of the Reserve and the possible designation of the NWHI as a Sanctuary, will be known as the Reserve/Sanctuary Advisory Council (Council). A Charter for the Council, signed in December 2000, provides for a 25-member Council, 15 of which are voting seats:

- three Native Hawaiian representatives, including one Native Hawaiian elder;
- three research representatives;
- three conservation representatives;
- one commercial fishing representative;





- one recreational fishing representative;
- one ocean-related tourism representative;
- one education representative;
- one citizen-at-large representative; and
- one State of Hawai'i representative.

Ten non-voting seats include:

- Reserve Coordinator;
- Manager of the Hawaiian Islands Humpback Whale National Marine Sanctuary;
- Department of the Interior representative;
- Department of State representative;
- National Marine Fisheries Service representative;
- U.S. Coast Guard representative;
- Department of Defense representative;
- National Science Foundation representative;
- Marine Mammal Commission representative; and
- Western Pacific Regional Fishery Management Council representative.

The voting members of the Council (except for the State of Hawai'i representative) were chosen through an open, competitive process held during December 2000 and January 2001. Forty-seven applications were received, and 14 of these applicants were chosen by NOAA, in consultation with the State of Hawai'i and the Department of the Interior, to become members of the Council. The Council met for the first time on February 16, 2001, and has had subsequent meetings in March, May, and November 2001, and January 2002.

The Council has and will play a key role in the development of this Reserve Operations Plan and subsequent Sanctuary designation process, by providing a link to the community and representing constituent views to the Reserve.

### Reserve Operations Plan

The Executive Order directs the Secretary to prepare a Reserve Operations Plan that focuses on priority issues and actions. NOS, on behalf of the Secretary, prepared this Reserve Operations Plan. This Reserve Operations Plan provides a guide for management of the Reserve for the next few years, before and during the Sanctuary designation process.

The Reserve Operations Plan follows the template for management plans developed by the National Marine Sanctuary Program (NMSP) and is composed of a set of function and issue-oriented (as identified in the Executive Order) action plans, with supporting documentation. Each action plan focuses on strategies; outlines what, who, why, when, and how different activities will be conducted; and presents an idea of what costs might be incurred for each strategy. Each action plan also contains performance indicators. Table 1 summarizes the action plans and strategies. Tables 2 and 3 present an overview of strategy scheduling and costs, respectively.

### Sanctuary Designation Process

The Act and the Executive Order direct the Secretary to begin the process to designate the Reserve as a National Marine Sanctuary. Major steps in the process are shown in Figure 2 in





the Designation Action Plan. The process will probably take 24 to 36 months to complete and will include numerous opportunities for public input and involvement; the Reserve/Sanctuary Advisory Council will also be integrally involved, as will the State of Hawai'i, the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, the Western Pacific Regional Fishery Management Council, the U.S. Coast Guard, and other partners.

### Existing Authorities

A number of Federal and State agencies have jurisdictional authority in the NWHI. They include:

- State of Hawai'i - owns and manages submerged lands and waters out to three nautical miles except around Midway Atoll, and the emergent land at Kure Atoll. Key agencies include the Department of Land and Natural Resources, the Department of Business, Tourism, and Economic Development, and the Department of Health.
- U.S. Fish and Wildlife Service (USFWS), Department of the Interior – owns all emergent land of the NWHI with the exception of Kure Atoll; oversees and manages the Hawaiian Islands and Midway Atoll National Wildlife Refuges, including the waters around Midway Atoll, under the National Wildlife Refuge Act. The USFWS is also responsible for protecting endangered species under the Endangered Species Act and migratory birds under the Migratory Bird Treaty Act.
- U.S. Coast Guard (USCG), Department of Transportation - responsible for enforcing federal laws and regulations in the Exclusive Economic Zone and beyond.
- National Marine Fisheries Service (NMFS), NOAA - oversees fisheries management and species protection under the Magnuson-Stevens Act, the Endangered Species Act, and the Marine Mammal Protection Act in the Exclusive Economic Zone. Key offices in Hawai'i include the Honolulu Laboratory and the Pacific Islands Area Office. NMFS also contains NOAA's enforcement arm. The Western Pacific Regional Fishery Management Council (WPRFMC) develops Fishery Management Plans subject to Department of Commerce review, approval, and implementation through Federal regulation.

As mentioned, many of the partner agencies discussed in this Reserve Operations Plan have been active in the NWHI for many years. Reserve staff (and any subsequent Sanctuary) will work with these partners in a manner that supplements and complements their ongoing efforts and jurisdictional responsibilities. This approach is consistent with both the Executive Order and the NMSA. Working together may take a number of forms, including providing these agencies with seats on the Reserve/Sanctuary Advisory Council, the development of Memoranda of Understanding, and sharing resources for joint projects. It is expected that such cooperative efforts will look beyond jurisdictional boundaries to ensure continued and enhanced viability of the resources of the NWHI.

Though its boundaries do not include the NWHI, the Hawaiian Islands Humpback Whale National Marine Sanctuary is managed by NOS, as is the Reserve. By virtue of their proximity, shared missions, and shared management overview, the sites may eventually develop joint programs such as for research and education, and joint administrative and visitor facilities. Such programs will be designed to optimize education, outreach, research, and monitoring efforts to protect and promote the special resource value of these areas.





Table 1: Summary of Action Plans and Strategies

Action Plan	Strategies
Operations	<ul style="list-style-type: none"> <li>• Coordinate Reserve/Sanctuary Advisory Council operations.</li> <li>• Develop MOUs with partners.</li> <li>• Determine fishing caps and clarify RPA boundaries.</li> <li>• Develop permitting procedures.</li> <li>• Develop infrastructure.</li> <li>• Identify types and areas for recreation, tourism, and commercial activities.</li> </ul>
Education and Outreach	<ul style="list-style-type: none"> <li>• Develop presentation and outreach materials.</li> <li>• Develop brochures.</li> <li>• Develop interpretive displays and signage.</li> </ul>
Cultural Resources	<ul style="list-style-type: none"> <li>• Conduct cultural resources literature review.</li> <li>• Develop cultural collections database.</li> <li>• Identify culturally significant uses and locations in the Reserve.</li> <li>• Develop cultural resource education program.</li> <li>• Coordinate with the Polynesian Voyaging Society on a voyage to the NWHI.</li> </ul>
Research and Monitoring	<ul style="list-style-type: none"> <li>• Facilitate bank monitoring study.</li> <li>• Coordinate with current and past research projects.</li> <li>• Develop a research staff and agenda.</li> <li>• Assist in preparing and planning for NOW-RAMP 2002.</li> </ul>
Mapping	<ul style="list-style-type: none"> <li>• Assist in the development of a working chart.</li> <li>• Support other mapping projects.</li> </ul>
Restoration	<ul style="list-style-type: none"> <li>• Conduct assessment of restoration needs.</li> </ul>
Emergency Response and Damage Assessment	<ul style="list-style-type: none"> <li>• Compile a list of agencies and response resources.</li> <li>• Develop a contingency plan.</li> </ul>
Marine Debris	<ul style="list-style-type: none"> <li>• Assist in marine debris removal.</li> <li>• Support marine debris web site.</li> <li>• Assist in prevention of marine debris.</li> </ul>
Enforcement	<ul style="list-style-type: none"> <li>• Support the development of a vessel monitoring system expansion.</li> <li>• Continue education and outreach.</li> <li>• Provide increase in air and sea support.</li> </ul>
Designation	<ul style="list-style-type: none"> <li>• Develop communications plan.</li> <li>• Complete project planning.</li> <li>• Utilize Reserve “vision” process as designation basis.</li> <li>• Prepare for scoping meetings.</li> <li>• Conduct scoping meetings.</li> <li>• Let contracts for special assessments.</li> <li>• Examine Reserve Operations Plan.</li> <li>• Conduct internal evaluation of issues.</li> <li>• Characterize and prioritize issues and develop recommendations.</li> <li>• Develop Draft Management Plan/DEIS.</li> <li>• Conduct public review of Draft Management Plan/DEIS.</li> <li>• Develop Final Management Plan/FEIS.</li> </ul>





Table 2: Timeframe of Strategies

Action Plan and Strategy	2001	2002	2003	2004
<b>Operations</b> <ul style="list-style-type: none"> <li>Coordinate Reserve/Sanctuary Advisory Council operations.</li> <li>Develop MOUs with partners.</li> <li>Determine fishing caps and clarify RPA boundaries.</li> <li>Develop permitting procedures.</li> <li>Develop infrastructure.</li> <li>Identify types and areas for activities.</li> </ul>				
<b>Education</b> <ul style="list-style-type: none"> <li>Develop presentation and outreach materials.</li> <li>Develop brochures.</li> <li>Develop interpretive displays and signage.</li> </ul>				
<b>Cultural Resources</b> <ul style="list-style-type: none"> <li>Conduct cultural resources literature review.</li> <li>Develop cultural collections database.</li> <li>Identify culturally significant uses and locations in the Reserve.</li> <li>Develop cultural resource education program.</li> <li>Coordinate with the PVS on a voyage to the NWHI.</li> </ul>				
<b>Research and Monitoring</b> <ul style="list-style-type: none"> <li>Facilitate bank monitoring study.</li> <li>Coordinate with current and past research projects.</li> <li>Develop a research staff and agenda.</li> <li>Assist in preparing and planning for NOW-RAMP 2002.</li> </ul>				
<b>Mapping</b> <ul style="list-style-type: none"> <li>Assist in the development of a working chart.</li> <li>Support other mapping projects.</li> </ul>				
<b>Restoration</b> <ul style="list-style-type: none"> <li>Conduct assessment of restoration needs.</li> </ul>				
<b>Emergency Response and Damage Assessment.</b> <ul style="list-style-type: none"> <li>Compile a list of agencies and response resources.</li> <li>Develop a contingency plan.</li> </ul>				
<b>Marine Debris</b> <ul style="list-style-type: none"> <li>Assist in marine debris removal.</li> <li>Support marine debris web site.</li> <li>Assist in prevention of marine debris.</li> </ul>				
<b>Enforcement</b> <ul style="list-style-type: none"> <li>Support the development of a VMS expansion.</li> <li>Continue education and outreach.</li> <li>Provide increase in air and sea support.</li> </ul>				







Table 3: Strategy Costs Summary

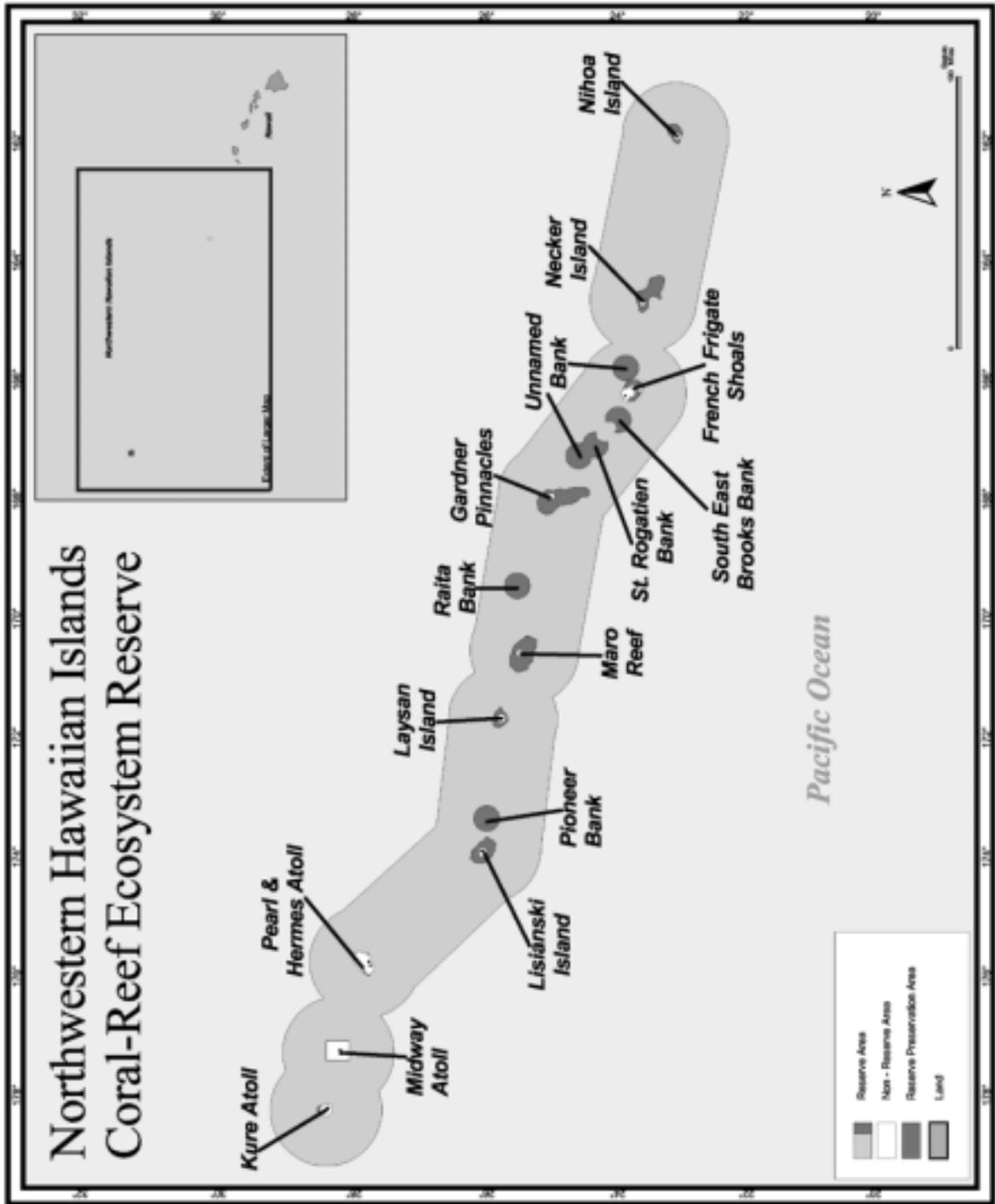
Action Plan and Strategy	Staff Time	Travel	Printing	Equipment	Contracts	Other
<b>Operations</b> <ul style="list-style-type: none"> <li>Coordinate Reserve/Sanctuary Advisory Council operations.</li> <li>Develop MOUs with partners.</li> <li>Determine fishing caps and clarify RPA boundaries.</li> <li>Develop permitting procedures.</li> <li>Develop infrastructure.</li> <li>Identify types and areas for activities.</li> </ul>	✓ ✓ ✓ ✓ ✓ ✓ ✓	✓  ✓ ✓	✓   	✓	✓	✓ - vessel
<b>Education</b> <ul style="list-style-type: none"> <li>Develop presentation and outreach materials.</li> <li>Develop brochures.</li> <li>Develop interpretive displays and signage.</li> </ul>	✓ ✓ ✓		✓ ✓ ✓		✓ ✓ ✓	
<b>Cultural Resources</b> <ul style="list-style-type: none"> <li>Conduct cultural resources literature review.</li> <li>Develop cultural collections database.</li> <li>Identify culturally significant uses and locations in the Reserve.</li> <li>Develop cultural resource education program.</li> <li>Coordinate with the PVS on a voyage to the NWHL.</li> </ul>	✓ ✓ ✓ ✓ ✓				✓ ✓ ✓ ✓	
<b>Research and Monitoring</b> <ul style="list-style-type: none"> <li>Facilitate bank monitoring study.</li> <li>Coordinate with current and past research projects.</li> <li>Develop a research staff and agenda.</li> <li>Assist in preparing and planning for NOW-RAMP 2002.</li> </ul>	✓ ✓ ✓ ✓				✓	✓ - ship time
<b>Mapping</b> <ul style="list-style-type: none"> <li>Assist in the development of a working chart.</li> <li>Support other mapping projects.</li> </ul>	✓ ✓					✓ - ship time
<b>Restoration</b> <ul style="list-style-type: none"> <li>Conduct assessment of restoration needs.</li> </ul>	✓	✓				
<b>Emergency Response and Damage Assessment</b> <ul style="list-style-type: none"> <li>Compile a list of agencies and response resources.</li> <li>Develop a contingency plan.</li> </ul>	✓ ✓	✓				
<b>Marine Debris</b> <ul style="list-style-type: none"> <li>Assist in marine debris removal.</li> <li>Support marine debris web site.</li> <li>Assist in prevention of marine debris.</li> </ul>	✓ ✓ ✓	✓			✓	✓ - ship time
<b>Enforcement</b> <ul style="list-style-type: none"> <li>Support the development of a VMS expansion.</li> <li>Continue education and outreach.</li> <li>Provide increase in air and sea support.</li> </ul>	✓ ✓ ✓	✓		✓ ✓	✓ ✓	







Figure 4: Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve



## Reserve Setting



### Introduction

The expansive coral reef ecosystem of the Northwestern Hawaiian Islands (NWHI) encompasses an array of natural, cultural, and historic features found nowhere else on Earth (Figure 1). The coral reefs are the foundation of an ecosystem that hosts a distinctive assemblage of marine mammals, fish, sea turtles, birds, and invertebrates, including species that are endemic, rare, threatened, and endangered. Federally protected species include the endangered Hawaiian monk seal and the threatened green sea turtle. The coral reefs and lands that support these species provide an amazing geological record of the volcanic and erosive powers that have shaped this area.

These diverse natural resources are complemented by the area's rich historic significance. Numerous artifacts establish a close relationship with the Hawaiian culture in the main Hawaiian Islands, as well as to early Polynesian cultures. The area played an important role in the World War II Battle of Midway, considered to be the most decisive U.S. victory and the turning point of the Pacific war (Midway, 2000). Shipwrecks from the early whaling industry and from early explorers also dot the region. With its diverse cultural and historical resources and significant natural resources, this coral reef ecosystem provides outstanding research opportunities for biologists, oceanographers, archaeologists, and historians.

### Natural Resources

#### A Unique Coral Ecosystem

The extensive coral reefs of the NWHI encompass over 11,000 square kilometers of coral reef habitat (Table 4). This represents 50%-70% of all coral reefs in U.S. waters (Miller and Crosby, 1998). Pearl and Hermes Reef has the most extensive nearshore reefs (less than three miles from shore); Gardner Pinnacles, Maro Reef, and Necker Island, the most extensive offshore reefs.

The reefs are composed of 51 species of stony coral and eight species of soft coral and coral-like anemones (Maragos *et al.*, in preparation), a diversity and species richness that rivals that of the main Hawaiian Islands. Compared to other regions in the world, the diversity of coral species is low and is often attributed to the isolation of this island chain (Grigg, 1983; Maragos, 1977). There are exceptionally high numbers of endemic corals and algae.

Within the NWHI, the reefs differ in coral cover and species organization. Coral cover gradually declines to the northwest due to slower growth rates and the increased frequency of storm disturbances (Grigg, 1983). Past studies reveal mean coral cover ranging from 8% to 69% among the islands (Green, 1997).

Coral species in the NWHI are slower-growing than in most areas. This is one theory at Kure Atoll, also known as the "Darwin Point," due to the fact that the corals are just keeping pace with sea level rise. Kure Atoll is the northernmost coral reef in the world.

Climatic events, on an interannual scale, may play an important role in the ecosystem produc-



Table 4. Coral reef area (km<sup>2</sup>) located in nearshore waters (0-3 nautical miles (nmi)) and the Exclusive Economic Zone (3-200 nmi from shore) in Hawai'i (Hunter, 1995)

Northwestern Hawaiian Islands	0-3 nmi	3-200 nmi	Total
Brooks Banks	0	290	290
French Frigate Shoals	456	277	733
Gambia Shoal	0	19	19
Gardner Pinnacles	86	1,818	1,904
Kure Atoll	147	20	167
Ladd Seamount	0	202	202
Laysan Island	34	23	57
Lisianski Island	202	777	979
Maro Reef	18	1,490	1,538
Midway Atoll	203	20	223
Necker Island	98	1,440	1,538
Nero Seamount	0	91	91
Nihoa Island	20	226	246
Northampton Banks	0	399	399
Pearl and Hermes Reef	1,166	0	1,166
Pioneer Bank	0	414	414
Raita Bank	0	513	513
Saint Rogatien Bank	0	311	311
Salmon Banks	0	142	142
Unnamed shoal	0	114	114
Unnamed shoal	0	2	2
Unnamed shoal	0	73	73
Unnamed shoal #1 between Nihoa and Necker	0	52	52
Unnamed shoal #2 between Nihoa and Necker	0	280	280
Unnamed shoal #3 between Nihoa and Necker	0	85	85
Unnamed shoal #4 between Nihoa and Necker	0	47	47

tivity of the northwestern chain. Declines in the productivity of seabirds, monk seals, reef fishes, and chlorophyll have been documented from the early 1980s to the present, and have been attributed, in part, to these climatic events (Friedlander, 1996). While severe tropical storms or typhoons are rare, winter storms are common, resulting in a noticeable increase in winds and high seas that impact the reef system both negatively and positively.

This vast coral reef ecosystem supports a wide array of marine species. While more than 7,000 marine species have been recorded in the Hawaiian Islands, as many as half of them exist only in the NWHI (Hawai'i DLNR, 2000). The coral reefs are the foundation of an expansive ecosystem that hosts an interdependent association of vertebrates (monk seals, reef and bottom fish, turtles, birds, sharks), invertebrates (corals, anemones, jellyfishes, mollusks, shrimps, crabs, lobsters, sea urchins, sea stars, sea cucumbers), sea grasses, and algae (Table 5).

#### Importance to Marine Mammals and Sea Turtles

The NWHI ecosystem plays an important role in supporting a host of marine mammals and sea turtles. Like the Hawaiian monk seals, Hawaiian spinner and bottlenose dolphins are resident species that occur within this ecosystem during the entire year. Transient species such as spotted dolphins, humpback whales, and numerous other marine mammals occur



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Table 5. Endemism in Hawai'i (Gulko, 1998)

Species	% level of endemism
<b>OVERALL INVERTEBRATES</b>	32%
Sponges	29%
Jellyfish (Sea Jellies)	0%
Reef-building corals	18%
Non-reef-building corals	49%
Marine Worms (Polychaetes)	28%
Marine Snails (Mesogastropods)	21%
Sea Cucumbers	40%
Sea Urchins	47%
Brittlestars	49%
Sea Stars (Starfish)	65%
<b>OVERALL REEF FISH</b>	25%
Angelfish	57%
Blennies	62%
Butterflyfish	14%
Cardinalfish	20%
Damselfish	44%
Gobies	40%
Moray Eels	11%
Parrotfish	44%
Scorpionfish	35%
Surgeonfish	0%
Triggerfish	0%
Wrasses	39%

seasonally within 20 nautical miles of the Northwestern Hawaiian Island archipelago (Table 6).

#### Hawaiian Monk Seal

Nearly the entire world population of endangered Hawaiian monk seals is found in the NWHI. The first range-wide beach counts of monk seals occurred in the late 1950s. Due to a fifty percent decline discovered in the beach counts, the Hawaiian monk seal was listed as endangered throughout its range in 1976. NMFS designated critical habitat for the Hawaiian monk seal from shore out to 20 fathoms in ten areas of the NWHI in May 1988. NMFS believes these areas require special management consideration or protection now and in the reasonably foreseeable future.

The size of the monk seal population has remained essentially unchanged since 1993. Today, NMFS estimates that there are approximately 1,400 animals remaining throughout the island chain.

Monk seals are known to forage primarily on prey associated with the coral reefs. New research methods, however, reveal more information regarding foraging patterns. It is now known that Hawaiian monk seals typically range well outside of the currently designated critical habitat. A maximum foraging depth of 500 meters for prey items associated with



Table 6. Transient sea turtles and marine mammals in the Northwestern Hawaiian Islands (George Antonelis, pers. comm)

Common Name	Taxonomic Name
<b>SEA TURTLES</b>	
Loggerhead	<i>Caretta caretta</i>
Olive ridley	<i>Lepidochelys olivacea</i>
Leatherback	<i>Dermochelys coricea</i>
<b>MARINE MAMMALS</b>	
Melon-headed whale	<i>Peponocephala electra</i>
Spotted dolphin	<i>Stenella attenuata</i>
Striped dolphin	<i>Stenella coeruleoalba</i>
Rough-toothed dolphin	<i>Steno bredanensis</i>
Risso's dolphin	<i>Grampus griseus</i>
Short-finned pilot whale	<i>Globicephala macrorhynchus</i>
False killer whale	<i>Pseudorca crassidens</i>
Blainville's beaked whale	<i>Mesoplodon densirostris</i>
Cuvier's beaked whale	<i>Ziphius cavirostris</i>
Killer whale	<i>Orsinus orca</i>
Fin whale	<i>Balaenoptera physalus</i>
Humpback whale	<i>Megaptera novaeangliae</i>
Sperm whale	<i>Physeter macrocephalus</i>

precious gold coral beds found in deep waters has been recorded (WPRFMC, 2000). Current research activities are assessing the degree of prey associations.

### Sea Turtles

This ecosystem is important nesting habitat for the threatened green sea turtle. Significant nesting sites exist on French Frigate Shoals and to a lesser degree on Laysan Island, Lisianski Island, and Pearl and Hermes Reef. The green sea turtle occupies three habitat types: open beaches, open sea, and feeding grounds in shallow, protected waters. Upon hatching, the young turtles gradually crawl from the beach and swim over shallow reef areas and extensive shoal areas to the open ocean. When their shells grow 8-10 inches long, they move to shallow feeding grounds over coral reefs and rocky bottoms. Age at sexual maturity is estimated at 20-50 years. The green sea turtle was listed as threatened in 1978. Although the population has increased significantly since the 1970s, the total number of nesting females is still well below the historical levels of the late 1800s (NMFS, 2000).

Although scattered low level nesting occurs throughout the Hawaiian archipelago, over 90 percent of the nesting is at French Frigate Shoals. The shallow waters within French Frigate Shoals have been identified as inter-nesting habitat for adult females and also adult males that migrate to breed at this key site (Dizon and Balazs, 1982), totaling approximately 200-700 nesting females annually (USFWS, 2001). Research indicates that the range of adult green turtles using French Frigate Shoals is limited to the 2,400-kilometer stretch of the Hawaiian Archipelago (Balazs 1976, 1983; NMFS and USFWS, 1998) and to Johnston Atoll immediately to the south, where algal foraging pastures occur (Balazs, 1985). While the green sea turtle is a resident species, the leatherback, olive ridley, and loggerhead sea turtles are considered transient species that occur seasonally in this expansive area.





## Importance to Fishes

The coral reefs of the NWHI support numerous species of marine, reef, and shore fish (Table 7). Some fish species commonly found on these reefs, such as the slingjaw wrasse and the knifefish, are rare elsewhere in the archipelago (Friedlander, 1996). The total number of species in the region is unknown, but initial sampling indicates the presence of approximately 260 species (Randall *et al.*, 1993).

Structurally, fish communities in the NWHI are dominated by apex predators, such as sharks and jacks. In addition, abundance and biomass estimates indicate that the reef community is characterized by fewer herbivores, such as surgeonfishes, and more carnivores, such as damselfishes, goatfishes, and scorpionfishes (Parrish *et al.*, 1985). While linkages between the NWHI species and those in the main Hawaiian Islands are thought to exist, more research is necessary to clearly understand the sinks and sources and recruitment patterns between these areas.

## Importance to Seabirds, Waterbirds, and Land Birds

The NWHI are home to millions of seabirds, many of which rely on the coral reef ecosystem for food and other habitat needs (Table 8). Four endangered endemic bird species which are not seabirds (Laysan duck, Laysan finch, Nihoa finch, and Nihoa millerbird) breed on the islands, along with 14 million seabirds of 18 species.

## Importance to Invertebrate Communities

The coral reefs of the NWHI support diverse communities of benthic macroinvertebrates (Table 9). Sixty-three species of macroinvertebrates, largely mollusks, echinoderms, and crustaceans, have been documented (Parrish *et al.*, 1985). Spiny and slipper lobsters are an important commercial fishery, but they are also a vital link in the trophic food web of many other organisms in the nearshore coral reef ecosystem (Friedlander, 1996).

Algae are important to Hawai'i's ecology as a food source for a number of reef organisms, and also serve as settling and attachment sites for small and cryptic reef species. Some 205 species of marine algae, including a number of newly identified deepwater species that are relatively unknown in the area, have been identified in the Northwestern Hawaiian Islands (Abbott, 1989).

## Physical, Chemical, and Geological Description

Millions of years ago, a series of seamounts emerged from the ocean to form the Hawaiian Archipelago, among the longest and most isolated chains of tropical islands in the world. The NWHI constitute the northwest two-thirds of this vast chain. Moving northwest from the main Hawaiian Islands, this 1,200-mile stretch of emergent lands (Table 10) is characterized as small rocky islands, atolls, coral islands and reefs, which become progressively older and generally smaller (Wells, 1988).

At the southeast end is Nihoa Island, which is 131 miles from Ni'ihau in the main Hawaiian Islands. The island's two peaks and steep sea cliffs are clearly visible from a distance. The





Table 7. Composition of major fish families in the Northwestern Hawaiian Islands (Parrish *et al.*, 1985).

Scientific Name (Common Name)	Number of Species	% of all individuals in community
<i>Muraenidae</i> (moray eels)	11	4
<i>Congridae</i> (conger eels)	5	2
<i>Ophichthidae</i> (snake eels)	7	3
<i>Ophidiidae</i> (cusk eels)	1	<1
<i>Holocentridae</i> (squirrelfishes)	7	12
<i>Scorpaenidae</i> (scorprionfishes)	10	2
<i>Priacanthidae</i> (bigeyes)	3	<1
<i>Apogonidae</i> (cardinalfishes)	5	16
<i>Mullidae</i> (goatfishes)	7	2
<i>Chaetodontidae</i> (butterflyfishes)	11	2
<i>Pomacentridae</i> (damselselfishes)	9	16
<i>Cirrhitidae</i> (hawkfishes)	4	<1
<i>Labridae</i> (wrasses)	22	12
<i>Scaridae</i> (parrotfishes)	4	2
<i>Gobiidae</i> (gobies)	4	19
<i>Acanthuridae</i> (surgeonfishes)	12	2
<i>Tetraodontidae</i> (pufferfishes)	4	<1

Table 8. Breeding seabirds in the Northwestern Hawaiian Islands (Bernice Pauahi Bishop Museum, 2000)

Common Name	Taxonomic Name
LAND BIRDS	
Laysan Duck	<i>Anas laysanensis</i>
Laysan Finch	<i>Telespiza cantans</i>
Nihoa Finch	<i>Telespiza ultima</i>
Nihoa Millerbird	<i>Acrocephalus familiaris kingi</i>
SEABIRDS	
Band-rumped storm petrel	<i>Oceanodroma castro</i>
Black Noddy	<i>Anous minutus melanogenys</i>
Black-footed Albatross	<i>Diomedea nigripes</i>
Blue-gray noddy	<i>Procelsterna cerula saxatilis</i>
Bonin Petrel	<i>Pterodroma hypoleuca</i>
Brown Booby	<i>Sula leucogaster plotus</i>
Brown Noddy	<i>Anous stolidus pileatus</i>
Bulwer's Petrel	<i>Bulweria berwerii</i>
Christmas Shearwater	<i>Puffinus nativitatis</i>
Dark-rumped Petrel	<i>Pterodroma phaeopygia sandwichensis</i>
Gray-backed Tern	<i>Sterna lunata</i>
Great Frigatebird	<i>Fregata minor palmerstoni</i>
Laysan Albatross	<i>Diomedea immutabilis</i>
Masked Booby	<i>Sula dactylatra personata</i>
Red-footed Booby	<i>Sula sula rubripes</i>
Red-tailed Tropicbird	<i>Phaethon rubricauda rothschildi</i>
Sooty Tern	<i>Sterna fuscata oahuensis</i>
Wedge-tailed Shearwater	<i>Puffinus pacificus</i>
White Tern	<i>Gygis alba rothschildi</i>
White-tailed Tropicbird	<i>Phaethon lepturus dorotheae</i>



Table 9. Composition of benthic biota in patch reef habitat of the NWHI (All values are in percent of the total biota from benthic samples.) (Adapted from Parrish *et al.*, 1985)

Organism Group	% Numbers
ALGAE	--
ZOOPLANKTON	11
BENTHIC INVERTEBRATES	89
Sponges	--
Worms <sup>1</sup>	11
Annelid Worms	10
Other worms	1
Echinoderms <sup>1</sup>	0.025
Echinoids	0.007
Ophiuroids	0.018
Benthic Mollusks <sup>1</sup>	2.1
Gastropods	1.9
Bivalves	0.2
Benthic Crustaceans <sup>1</sup>	75.5
Small Crustaceans <sup>1</sup>	75
Tanaidacea	41
Isopoda	15
Amphipoda	19
Large Crustaceans <sup>1</sup>	0.55
Hermit Crabs	0.03
Other Crabs	0.21
All Shrimp	0.3

<sup>1</sup> Includes in its total all the subgroups immediately below that are indented to the right.

northern edge is a steep cliff made up of successive layers of lava through which numerous volcanic extrusions (dikes) are visible. Nihoa's submergent coral reef habitat totals approximately 142,000 acres.

Next in the chain is Necker Island, a dry volcanic island shaped like a fish hook. Necker is also known by the Hawaiian name *Moku Manamana*, and is spiritually significant in the Native Hawaiian culture. More than 380,000 acres of coral reef habitat are associated with the island of Necker. French Frigate Shoals, the largest atoll in the chain, forms an 18-mile wide, crescent shaped atoll. The lagoon contains two exposed volcanic rocks and 12 low, sandy islets.

About 230,000 acres of coral reef habitat are associated with French Frigate Shoals. Surrounding French Frigate Shoals are a series of submerged banks. An unnamed bank is located just to the east. To the west is South East Brooks Bank, St. Rogatien Bank, and another unnamed bank.

Continuing to the northwest are the Gardner Pinnacles which consist of two peaks of volcanic rock. The frosted appearance of the peaks (due to guano) indicates their importance as a



roosting site and breeding habitat for 12 species of tropical seabirds. Approximately 600,000 acres of coral reef habitat surround these pinnacles.

Maro Reef is a largely submerged atoll with less than one acre of emergent land but is surrounded by nearly half a million acres of submerged coral reef habitat. Laysan is the largest island in the chain, with about 1,000 acres of land. It is well vegetated aside from its sandy dunes and contains a hypersaline lake, which is one of only five natural lakes in the State of Hawai'i. Laysan's coral reef habitat is approximately 145,000 acres.

Lisianski Island is a low sand and coral island, with 400 acres of land. It lies at the northern end of a large reef bank, spanning 65 square miles and totaling 310,000 acres. Pearl and Hermes Reef is a large atoll with several small islets forming about 80 acres of land and almost 200,000 acres of coral reef habitat. The islets are periodically washed over when winter storms pass through the area, as on both French Frigate Shoals and Kure Atoll.

Kure Atoll is the northernmost coral atoll in the world. The atoll is nearly circular with a six-mile diameter enclosing nearly 200 acres of emergent land. The outer reef nearly forms a circle around the lagoon except for passages to the southwest. The only permanent land in the atoll is crescent-shaped Green Island, located near the fringing reef in the southeastern part of the lagoon. Almost 80,000 acres of coral reef habitat are found there. North of Kure, where growth rates are even slower, drowned atolls form the Emperor Seamounts, which extend all the way to the Kamchatka Peninsula in Russia (Grigg, 1982).

Due to their active volcanism, isolation, and linear progression, the NWHI, together with the main Hawaiian Islands, represent a nearly perfect "textbook" example of the evolution of islands and reefs (Gulko, 1998). The Northwestern Hawaiian Islands are even more exemplary because they have been subjected only to minimal human disturbance.

### Cultural Significance

In addition to the wealth of natural resources, this area is closely tied to the cultural heritage of Hawai'i, and more broadly to U.S. history. Numerous artifacts found on Nihoa Island establish a close relationship with the Hawaiian culture of the main Hawaiian Islands. As many as 175 people are estimated to have lived there during prehistoric times. At Nihoa Island's 88 archaeological sites, there is evidence of habitation, religious ceremonies, agriculture, and burials.

Artifacts on Necker Island (known to the Hawaiians as *Moku Manamana*) suggest that the island was used in prehistoric times, primarily for religious ceremonies. Of the 52 known archaeological sites, 33 are religious shrines (Cleghorn, 1988). Many of the temple sites closely resemble those of the Marquesas Islands and Tahiti, possibly establishing a link between this site and early Polynesian cultures. Oral history and identified artifacts demonstrate that these islands have also served as fishing grounds for the people of Hawai'i for centuries. Both Nihoa and Necker Islands are listed on the National Registry of Historic Places.

During the late 1700s and early 1800s European and American traders called at the larger Hawaiian islands, and by 1825, Honolulu had become the most important port in the entire Pacific. Several of the islands were leased for a period of 25 years to the North Pacific Phos-



Table 10. Area and elevation of NWHI running southeast to northwest from main Hawaiian Islands (Juvik and Juvik, 1998)

Island	Total Area		Elevation	
	Square miles	Square km	Feet	Meters
Nihoa Island	0.3	0.7	903	275
Necker Island	0.07	0.2	276	84
French Frigate Shoals	0.1	0.2	120	37
Gardner Pinnacles	0.01	0.02	190	58
Maro Reef	Awash	Awash	Awash	Awash
Laysan Island	1.6	4.1	40	12
Lisianski Island	0.6	1.5	40	12
Pearl and Hermes Atoll	0.1	0.3	10	3
Midway Atoll	2.5	6.4	12	4
Kure Atoll	0.4	1.0	20	6

phate and Fertilizer Company for guano extraction. Bird skins and feathers were also harvested. Development of land-based, commercial facilities was most significant on Laysan Island, where a small community existed in the 1890s, but harvesting also occurred on Lisianski Island.

Midway was first settled in 1903 by employees of the Commercial Pacific Cable Company. Tons of imported soil and numerous introduced plants significantly altered the landscape. In the 1930s, Pan American Airways used Midway as a resting and refueling station for their Flying Clippers. A weather station was also established on the atoll. The U.S. Navy, as well as other U.S. Government agencies, became interested in the NWHI in the late 1890s and early 1900s. Hawai'i became a United States Territory on April 30, 1900.

The NWHI played a significant role in U.S. history during World War II. The Navy built a base at Midway Atoll, dredging the reef to form a channel and harbor. Eastern Island had the main airfield in the early days of the war, while submarine and seaplane operations were concentrated on Sand Island. Together, these areas comprised a vital center for submarine and seaplane operations (Hawai'i DLNR, 2000).

In June 1942, the Battle of Midway took place in the seas to the north of this Pacific outcrop. This battle proved to be the most decisive U.S. victory, and was the turning point of World War II in the Pacific. Four Japanese aircraft carriers were sunk, and Japanese forces were on the defensive for the remainder of the war.

Meanwhile, the U.S. Coast Guard occupied Tern (part of French Frigate Shoals) and Eastern Islands from 1944 until the 1970s and operated long range navigational aids (LORAN) stations. The Coast Guard also operated a LORAN station at Kure Atoll, which was decommissioned in 1992.

In recent years, the Navy has phased out its presence, making way for the Midway Atoll National Wildlife Refuge, which assumed full custody and accountability following the Navy's departure. Today, Midway Atoll is the only remote island National Wildlife Refuge open to public visitation (Hawai'i DLNR, 2000). This effort complements President Theodore D. Roosevelt's legacy of the



Hawaiian Islands National Wildlife Refuge, which encompasses the eight easternmost islands in the chain and the surrounding reefs, for the protection of seabirds.

### Human Activities

Few human activities occur in the Reserve area (which includes waters from 3 to 50 miles offshore). None of the islands are inhabited. Researchers occasionally occupy the islands for limited periods of time and take part in research expeditions. There is some ecotourism, focused primarily on and around Midway Atoll. Commercial fishing remains the predominant activity in Reserve waters.

Currently, several fisheries in the NWHI are managed under Fishery Management Plans developed by the WPRFMC and approved by NMFS. The bottomfish fishery has two limited entry zones, the Ho'omalulu Zone, which ranges from Kure to French Frigate Shoals, with seven permits and the Mau Zone, which ranges from French Frigate Shoals to Nihoa, with ten permits.

The spiny and slipper lobster fishery is currently closed by NMFS, pending resolution of stock assessment issues. In the NWHI, this fishery has historically accounted for more than 90% of the total permitted commercial lobster catch in the Hawaiian Islands (Friedlander, 1996). This limited-entry lobster fishery was capped at 15 permits. The fishery cannot reopen until a Section 7 Endangered Species Act consultation is accepted by the court.

The pelagic longline fishery is a limited-entry system as well with a maximum of 164 permits, about 100 of which are active. These vessels are prohibited from operating in a 100-nautical-mile corridor in the NWHI to protect monk seals and therefore do not fish in Reserve waters. Troll and handline fishing for pelagic species is allowed within the NWHI by NMFS and the State of Hawai'i.

The precious coral fishery is managed under a Fishery Management Plan, but the fishery has not been active in the NWHI. However, exploratory beds have been identified by the WPRFMC for potential future harvest, excluding gold corals, which have been recognized as foraging habitat for the endangered Hawaiian monk seals.

The WPRFMC has recently developed a Coral Reef Ecosystem Fishery Management Plan that has been submitted to NMFS.



## Introduction to Action Plans



The Reserve Operations Plan is constructed around a set of functional- and issue-oriented action plans that outline how the Reserve will be managed for approximately the next three years, prior to and during the Sanctuary designation process. Each action plan outlines what, who, why, when, and how different strategies will be conducted and provides a list of anticipated costs. Each action plan also contains performance indicators.

Interested parties should note that while many of these strategies may be complete before the designation process is over, others may be carried into the draft Sanctuary management plan because they are ongoing, have led to new projects, or have not been started.

### List of Action Plans:

- Operations: includes interagency coordination, activity and area identification, Reserve/Sanctuary Advisory Council operations, and infrastructure development.
- Education: encompasses all education, outreach, and interpretive projects.
- Cultural Resources: consists of all projects related to Native Hawaiian culture, uses, and locations.
- Research and Monitoring: contains all projects related to research and monitoring.
- Mapping: covers all projects related to developing charts and maps of the NWHI.
- Restoration: contains projects related to restoration.
- Emergency Response and Damage Assessment: covers projects related to contingency planning and response.
- Marine Debris: consists of projects related to the removal of marine debris from the NWHI.
- Enforcement: includes air and sea support for existing enforcement operations and expansion of a vessel monitoring system.
- Designation: comprised of all projects related to the Sanctuary designation process.

### Summary of Existing Authorities

In addition to the Reserve, a number of existing authorities exercise jurisdiction in the NWHI. These authorities include:

- State of Hawai'i - owns and manages submerged lands and waters out to three nautical miles except around Midway Atoll. The State also owns the emergent land at Kure Atoll. Key agencies include the Department of Land and Natural Resources, the Department of Business, Tourism, and Economic Development, and the Department of Health.
- U.S. Fish and Wildlife Service (USFWS), Department of the Interior – owns all emergent land of the NWHI with the exception of Kure Atoll; oversees and manages the Hawaiian Islands and Midway Atoll National Wildlife Refuges, including the waters around Midway Atoll, under the National Wildlife Refuge Act. The USFWS is also responsible for protecting endangered species under the Endangered Species Act and migratory birds under the Migratory Bird Treaty Act.
- U.S. Coast Guard (USCG), Department of Transportation - responsible for enforcing Federal laws and regulations in the Exclusive Economic Zone and beyond.
- National Marine Fisheries Service (NMFS), NOAA - oversees fisheries management and





species protection under the Magnuson-Stevens Act, the Endangered Species Act, and the Marine Mammal Protection Act in the Exclusive Economic Zone and beyond. Key offices in Hawai'i include the Honolulu Laboratory and the Pacific Islands Area Office. NMFS also maintains NOAA's enforcement arm within the NMFS organization. The Western Pacific Regional Fishery Management Council (WPRFMC) develops Fishery Management Plans subject to Department of Commerce review, approval, and implementation through Federal regulation.

The relationship between the Reserve (and any subsequent Sanctuary) and the WPRFMC with regard to fisheries regulations beyond provisions of the Executive Order will be governed by Section 304(a)(5) of the National Marine Sanctuaries Act. Under this section, if it is determined that fishing regulations may be needed to protect the resources, the WPRFMC will be provided with the first opportunity to prepare those fishing regulations. If the WPRFMC declines to do so, does not do so in a timely manner, or if the Secretary of Commerce finds that the WPRFMC's actions fail to fulfill the purposes and policies of the NMSA and the goals and objectives of the proposed Sanctuary, the NMSP, on behalf of the Secretary, may prepare draft fishing regulations.

As mentioned, many of the partner agencies discussed in this ROP have been active in the NWHI for many years. Reserve staff (and any subsequent Sanctuary) will work with these partners in a manner that supplements and complements their ongoing efforts and jurisdictional responsibilities. This approach is consistent with both the Executive Order and the NMSA. Working together may take a number of forms, including providing these agencies with seats on the Reserve/Sanctuary Advisory Council, the development of Memoranda of Understanding, and sharing resources for joint projects. It is expected that such cooperative efforts will look beyond jurisdictional boundaries to ensure continued and enhanced viability of the resources of the NWHI.

Though its boundaries do not include the NWHI, the Hawaiian Islands Humpback Whale National Marine Sanctuary is managed by the National Ocean Service, as is the Reserve. By virtue of their proximity, shared missions, and shared management overview, the sites may eventually develop joint programs such as for research and education, and joint administrative and visitor facilities. Such programs will be designed to optimize education, outreach, research, and monitoring efforts to protect and promote the special resource value of these areas.





## Action Plan: Operations

### Background/Context:

The Executive Order established the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve and gave the Secretary the responsibility to manage the Reserve. Strategies for this action plan will focus on basic office establishment, priority staff hires, priority procurements, operation of the Reserve/Sanctuary Advisory Council, development of MOAs with partners, clarification of boundaries, and design and implementation of monitoring and enforcement activities.

### Strategies

- Strategy 1: Coordinate Reserve/Sanctuary Advisory Council Operations.
- Strategy 2: Develop MOAs With Partners.
- Strategy 3: Determine Fishing Caps and Clarify Reserve Preservation Area Boundaries.
- Strategy 4: Develop Permitting Procedures.
- Strategy 5: Develop Infrastructure.
- Strategy 6: Identify Types of and Areas for Recreation, Tourism, and Commercial Activities.

### Summary of Resource Needs

In-house staff time and:

- Strategy 1: additional costs for travel and printing.
- Strategy 6: additional costs for travel, equipment, and contracts.



## Strategy 1: Coordinate Reserve/Sanctuary Advisory Council Operations

### **Description and Need for the Strategy**

The Act and the Executive Order directed the Secretary of Commerce to convene an advisory committee under the authority of Section 315 of the NMSA to provide advice on the Reserve Operations Plan and designation and management of the Reserve as a National Marine Sanctuary. Such an advisory committee, since it has and will provide advice on both the operation of the Reserve and the possible designation of the NWHI as a Sanctuary, will be known as the Reserve/Sanctuary Advisory Council (Council). The NWHI Coral Reef Ecosystem Reserve/Sanctuary Advisory Council was established in January 2001 and has met in March, May, and November 2001. The Council is composed of 25 members: 15 voting members representing the community (Native Hawaiian, research, conservation, commercial fishing, recreational fishing, ocean-related tourism, education, citizen-at-large, and State of Hawai'i interests) and 10 non-voting members representing government interests (Departments of Defense, Interior, and State, Marine Mammal Commission, National Marine Fisheries Service, Western Pacific Regional Fishery Management Council, National Science Foundation, U.S. Coast Guard plus the managers of the Reserve and the Hawaiian Islands Humpback Whale National Marine Sanctuary). The Council is integral both to the development of the Reserve Operations Plan and the designation of this area as a National Marine Sanctuary.

### **Results of the Strategy**

#### Outputs:

- Completed Council meetings.
- Established procedures for conducting Council operation (e.g., leadership structure, travel arrangements, meeting arrangements, communication protocols).
- Council prepared for role in Sanctuary designation process.

Outcome: A coordinated and effective Council

### **Activities**

1. Reserve staff will need to create simple administrative procedures (within guidelines provided by the NMSP Council Implementation Handbook) for the following tasks:

- making travel arrangements;
- making meeting arrangements, including working lunches;
- advertising Council meetings to the general public;
- communicating with Council members;
- taking minutes at Council meetings;
- making minutes available to the public;
- replacing members or alternates; and
- forming subcommittees and working groups.

2. The Reserve staff will need to help the Council design its own letterhead (again, within guidelines provided by the Council Implementation Handbook).



**Location**

Meetings of the Council will occur in various places in the State of Hawai'i.

**Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Administrative Assistant
- IT Program Specialist
- Reserve/Sanctuary Advisory Council Coordinator (to be hired)
- National Council Coordinator (NMSP HQ)

**Timeline and Due Dates**

Ongoing

**Costs**

Labor will mainly be provided by in-house staff. Travel, meeting venue, copying, and mailing costs may be incurred.

**Performance Measures**

- Completion of at least three Council meetings during FY02.
- Establishment of Council administrative procedures.

**Relation to Other ROP Strategies and Other Projects**

The successful operation of the Council contributes to successful Reserve operations overall by providing a source of good advice and ideas on Reserve operations and Sanctuary designation.





## Strategy 2: Develop MOAs With Partners

### **Description and Need for the Strategy**

The Executive Order directs the Secretary to develop one or more Memoranda of Agreement with the State of Hawai'i and the USFWS to provide for coordinated management and protection of the Reserve. MOAs with other agencies may be developed as necessary.

### **Results of the Strategy**

Outputs: Completed MOAs with the State of Hawai'i, USFWS, and other agencies as necessary.

Outcome: Better functional and cooperative relationships among the agencies and entities with responsibilities in the NWHI.

### **Activities**

NOS, working with the NMSP, will work with the State of Hawai'i and the USFWS to develop MOAs that meet each of the parties' protocols and legal obligations. NOS will determine whether other MOAs would be needed to further the purposes of the Executive Order and the Act.

### **Location**

The scope of the MOAs will include the Reserve and surrounding areas.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Sanctuary Designation Project Manager
- Project Manager (NMSP HQ)
- State of Hawai'i partners
- USFWS partners

### **Timeline and Due Dates**

Efforts to begin the MOAs are already underway.

### **Costs**

The main costs will be in-house staff labor.

### **Performance Measures**

- Completion of MOA with the State of Hawai'i and USFWS by the end of FY02 .



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### Relation to Other ROP Strategies and Other Projects

The MOAs will help describe how NOS and NOAA work with its resource management partners on various operation and designation strategies described in other action plans.





### Strategy 3: Determine Fishing Caps and Clarify Reserve Preservation Area Boundaries

#### **Description and Need for the Strategy**

The Executive Order caps commercial and recreational fishing at current levels of take and effort. Further specifications are to be established by the Secretary as described in the Executive Order. Reserve Preservation Area Boundaries are determined by the Executive Order, based on bathymetric measurements. The Secretary will develop straight-line boundaries based on longitude and latitude coordinates to encompass each Reserve Preservation Area. The Council will provide recommendations to the Reserve Coordinator regarding fishing caps and boundary delineation.

#### **Results of the Strategy**

Outputs: Identification of capped levels for fishing in the Reserve and straight-line boundaries for the RPAs.

Outcome: Improved protection of the coral reef ecosystem and associated species within the Reserve.

#### **Activities**

Following the direction of the Executive Order and recognizing the legal requirements for confidentiality of catch data for both NMFS and the State of Hawaii, NOS will identify the fishing caps in consultation with NMFS, State of Hawaii, WPRFMC, USFWS, and the Reserve/Sanctuary Advisory Council. The caps will be published in the *Federal Register* for notice and comment prior to becoming final. Straight-line boundaries will be determined through a similar process.

#### **Location**

Fishing caps will be in place throughout the entire Reserve. Straight-line boundaries will be developed for each RPA.

#### **Staff and Partners**

- Reserve Coordinator (on-site)
- Deputy Reserve Coordinator (on-site)
- Project Manager (HQ)
- NMFS partners
- WPRFMC partners
- State of Hawaii partners
- USFWS partners
- Non-governmental organizations with missions that support the principal purpose of the Reserve, the conservation and preservation of the natural character of the NWHI. Note: Hereafter in this document, the term “non-governmental organization” is intended to mean non-governmental organizations with missions that support the principal purpose of the Reserve, the conservation and preservation of the natural character of the NWHI.



## Timeline and Due Dates

Efforts to determine fishing caps should be completed by the end of FY02. Efforts to clarify straight line boundaries are ongoing and should be completed by the end of FY02 as well.

## Costs

The main cost will be labor, provided by in-house staff.

## Performance Measures

- Fishing caps have been determined and implemented.
- Straight-line boundaries are established.

## Relation to Other ROP Strategies and Other Projects

The clarification of straight line boundaries effects the need for and development of a depth-based vessel monitoring system (see the Enforcement Action Plan for more detail).





## Strategy 4: Develop Permitting Procedures

### **Description and Need for the Strategy**

The Executive Order contains conservation measures which are restrictions of certain activities throughout the Reserve. The Reserve also has fifteen RPAs where all consumptive or extractive activities are prohibited, with limited exceptions for certain types of fishing activities. The primary management goal and principal purpose of the Reserve as stated in the Executive Order is the long-term conservation and protection of the NWHI in their natural character. This goal provides the overarching framework for decisions by the Reserve staff regarding limited exceptions to otherwise restricted activities. The Executive Order provides that the Secretary may authorize by permit certain otherwise restricted activities to the extent necessary for research, monitoring, education, or management purposes that further the management principles listed in the Executive Order. NOS needs to develop a permitting system to implement the permitting provisions of the Executive Order.

### **Results of the Strategy**

Outputs:

- Permitting procedures.
- Consultation procedures.

Outcome: A systematic way to allow otherwise prohibited activities that are consistent with the primary management goal of the Reserve.

### **Activities**

1. Develop thresholds and review criteria, based on those used by National Marine Sanctuaries (e.g., Florida Keys, Flower Garden Bank), and ensuring that such thresholds and review criteria support the principal purpose of the Reserve, the conservation and protection of the NWHI in their natural character.
2. Consult with jurisdictional partners and academic institutions on permitting protocols.
3. Ensure that delegation authorities in place for National Marine Sanctuaries and Sanctuary Managers are applicable to the Reserve.
4. Adapt or amend existing NMSP permit and consultation protocols to meet the needs of the Reserve, based on the earlier review, and ensure that on-site staff are trained appropriately.
5. Ensure that Reserve permitting procedures are coordinated with or complementary of those agencies with jurisdiction in the NWHI.
6. Conduct outreach to appropriate parties to ensure that agencies and individuals are aware of permitting and consultation requirements.

### **Location**

The scope of permitting will be for the entire Reserve. Technical processes (e.g. acceptance of permit applications and issuance of permits) will take place at the Reserve headquarters office in Honolulu and the HQ office of the NMSP.





## Staff and Partners

- Reserve Coordinator (on-site)
- Deputy Reserve Coordinator (on-site)
- Research Coordinator (on-site)
- Enforcement personnel (on-site)
- Permit Coordinator (HQ)
- State of Hawaii partners
- USFWS partners
- NMFS partners
- USCG partners
- Academic institutions
- Non-governmental organizations

## Timeline and Due Dates

The development of permitting procedures will begin in FY02 and be completed in approximately six months.

## Costs

All of the costs associated with this strategy involve in-house staff labor. Some start-up costs for software may be incurred.

## Performance Measures

- Design of permit processes completed by the end of FY02.





## Strategy 5: Develop Infrastructure

### **Description and Need for the Strategy**

NOS has the responsibility to establish infrastructure for the Reserve. Infrastructure includes establishing offices, hiring staff, and procuring equipment.

### **Results of the Strategy**

#### Outputs:

- Offices established in Hilo (Hawai'i) and Honolulu (O'ahu).
- Priority staff hired.
- GSA vehicles leased.
- Vessel completed and outfitted, and captain/crew obtained.

Outcome: Necessary infrastructure to conduct Reserve operations and the Sanctuary designation.

### **Activities**

Procedures for building all of the infrastructure are governed by General Services Administration and NOAA regulations.

### **Location**

Offices will be located in Hilo and Honolulu, with attendant office equipment and vehicles. The vessel will be kept on Kaua'i, but it will be able to carry a full crew and load of equipment to the NWHI. Storage space for the boat and equipment will be necessary on Kaua'i. This infrastructure will support operations across the Reserve. Any additional infrastructure will be assessed as to whether it meets the principal purpose of the Reserve or other objectives of the Executive Order and its potential impacts to the Reserve's resources.

### **Staff and Partners**

- Reserve Coordinator
- State of Hawai'i partners
- USFWS partners
- Administrative and procurement personnel (NOS/NMSP HQ)
- Captain and crew (to be hired)

### **Timeline and Due Dates**

Ongoing

### **Costs**

Labor to establish the infrastructure will mainly be provided by in-house staff. Additional costs will be incurred for staff hires, office and warehouse space, phones and utilities, office and computer equipment, and vessel construction and outfitting. The vessel will likely be shared with the HIHWNMS and other appropriate partners on a priority basis.



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### Performance Measures

- Priority staff hired:
  - Assistant Reserve Coordinator;
  - Administrative Specialist;
  - Sanctuary Designation Project Manager; and
  - Information Services Technician;
- Hilo and Honolulu offices established.
- Vessel completed.





## Strategy 6: Identify Types and Areas for Recreation, Tourism, and Commercial Activities

### **Description and Need for the Strategy**

The Executive Order calls for the identification of types and areas for appropriate recreation, tourism, and commercial activities, and the actions necessary in the face of these activities to ensure these activities do not degrade the Reserve's resources or diminish the Reserve's natural character. The Reserve proposes to conduct this activity in the next two years, in conjunction with the Council, government partners, and non-governmental organizations. It is likely that this process will be timed to prepare for or become part of the Sanctuary designation process.

### **Results of the Strategy**

Output: Report identifying the activities (e.g., by location, duration, and impacts) and recommended actions to ensure no degradation (e.g., zoning).

Outcome: Meets NOS's obligation to ensure the conduct of activities that are compatible with the primary purposes of the Reserve.

### **Activities**

The exact steps whereby this strategy will be completed will be determined at a later date. At a minimum, it will involve the creation of a working group or other Council participation as a key factor.

### **Location**

This strategy will affect the entire Reserve and surrounding areas.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Project Manager (NMSP HQ)
- State of Hawai'i partners
- USFWS partners
- NMFS partners
- WPRFMC partners
- Reserve/Sanctuary Advisory Council
- Non-governmental organizations

### **Timeline and Due Dates**

This strategy will be initiated in FY02.



## Costs

Labor will mainly be provided by in-house staff. Additional costs for travel or contract support may be incurred.

## Performance Measures

- Completion of a report or draft recommendations to be used in preparing a draft Sanctuary management plan, as part of the Sanctuary designation process by mid-FY03.

## Relation to Other ROP Strategies and Other Projects

This strategy will be coordinated with Strategy 3 in the Cultural Resources Action Plan, "Identify Culturally Significant Uses and Locations in the Reserve," as well as Strategy 10 of the Sanctuary Designation Action Plan, "Develop the Draft Management Plan and Environmental Impact Statement."







## Action Plan: Education and Outreach

### Background/Context

One of the primary mandates of the Executive Order is to educate the public about the Reserve, its resources, and efforts necessary to conserve them. Although some may be familiar with the main Hawaiian Islands, few have been introduced to the NWHI. Aside from research efforts and tourism excursions to Midway Atoll, people rarely travel to this area. This area is rich in natural resources, as well as, the cultural and geological history of Hawai'i. Efforts need to be made to educate the public regarding this unique area and the need for protection.

Education and outreach activities fall into two general categories: community involvement/community program activities and product development activities. The first group includes education and outreach activities designed as interactive programs such as school programs, public-involvement forums, and special events. Activities that result in the development of specific products such as videotapes or films of various lengths, Public Service Announcements, printed materials, signs, and visitor booths providing a mechanism for public education and outreach, and interpretive or learning centers which incorporate all of the above techniques are included in the second group. The majority of these efforts will target the main Hawaiian Islands. In addition, the NWHI are ideally suited for remote learning opportunities. These activities will incorporate new technologies such as web video, web sites, and others to reach a broad group of the public worldwide who lack access to this area.

Research and education/outreach are integrally related; the Reserve Coordinator and Council will work to ensure that efforts in both areas are coordinated and communicated among scientists, managers, and the public. The Education and Outreach and Research Working Groups of the Council will identify key themes for education and outreach, in accordance with the principal purposes of the Reserve (conservation and protection). Ideally, education and outreach will serve as an umbrella to coordinate educational activities contained within other action plans. Learning centers or other educational/interpretive facilities will be developed with the help and cooperation of other NWHI partners, as outlined in Strategy 3.



### Strategies

- Strategy 1: Develop Presentation and Outreach Materials.
- Strategy 2: Develop Brochures.
- Strategy 3: Develop Interpretive Displays/Signage in Conjunction with Interpretive/Learning Centers and Partners.

### Summary of Resource Needs

In-house staff time and:

- Strategy 1: additional costs for the creation and distribution of materials.
- Strategy 2: additional costs for the creation and distribution of materials.
- Strategy 3: additional costs for the creation and distribution of materials, plus lease costs and staff associated with the facilities.



## Strategy 1: Develop Presentation and Outreach Materials

### **Description and Need for the Strategy**

The NWHI are remote and therefore less familiar to the public even on the main Hawaiian Islands. The Reserve may also be unknown to a wide audience. Educating the public about the stewardship mandates of the Reserve and proposed Sanctuary is critical to the success of protection and management efforts. Awareness of the Reserve and Sanctuary designation process will also help promote public involvement. Education and outreach materials are essential to disseminating information and reaching the public.

### **Results of the Strategy**

Output: Presentation and outreach material.

Outcome: Increased awareness and community support.

### **Activities**

The Reserve Coordinator and staff will work with the Council, local constituencies, and NOS headquarters to develop presentation and outreach materials. Such materials will likely include a website, videos, and slide show/powerpoint presentations. Outreach materials should also extend to include the reproduction of color slides and photographs for broad distribution and other education materials targeting all levels from grade school through graduate programs.

Information will be provided to local and national groups for inclusion in their member publications, newsletters, and outreach efforts in order to build and broaden the constituency of support and understanding for the protection goal of the Reserve.

### **Location**

The materials will provide overview information on the Reserve and surrounding areas.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Communications Branch (NMSP HQ)
- Reserve/Sanctuary Advisory Council
- U.S. Coral Reef Task Force
- State of Hawai'i partners
- USFWS partners
- NMFS partners

### **Timeline and Due Dates**

Development of such products began in late FY01 and are ongoing.





## Costs

This strategy will require in-house staff labor plus additional costs for creation and distribution of presentation and outreach materials, as well as, partnering for learning centers as noted in Strategy 3.

## Performance Measures

- Completion of presentation and outreach materials

## Relation to Other ROP Strategies and Other Projects

This strategy will be coordinated with the communications plan that will support the Sanctuary designation process, the cultural resource education plan for cultural resources, and other ongoing education plans being conducted by the Reserve management partners.



## Strategy 2: Develop Brochures

### **Description and Need for the Strategy**

Educating the public and increasing awareness about the stewardship mandates of the Reserve and proposed Sanctuary is critical to the success of protection and management efforts. Awareness of the Reserve and Sanctuary designation process will also help promote public involvement. Brochures will be distributed to a variety of audiences to inform the public.

### **Results of the Strategy**

Output: Brochures.

Outcome: Increased awareness and community support.

### **Activities**

1. Identify target audiences.
2. Further define brochure content.
3. Select a contractor.
4. Produce and distribute brochures.

### **Location**

The brochures will provide a comprehensive overview of the Reserve and surrounding areas.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Communications Branch (NMSP HQ)
- Reserve/Sanctuary Advisory Council

### **Timeline and Due Dates**

To be determined.

### **Costs**

This strategy will involve in-house staff labor plus additional costs for creation, publication, and distribution of descriptive brochures.

### **Performance Measures**

- Completion of brochures.





### Strategy 3: Develop Interpretive Signs/Displays and Interpretive/Learning Centers

#### **Description and Need for the Strategy**

Educating the public and increasing awareness about the stewardship mandates of the Reserve and proposed Sanctuary is critical to the success of protection and management efforts. Awareness of the Reserve and Sanctuary designation process will also help promote public involvement.

#### **Results of the Strategy**

Outputs: Signage and displays, including at least one interpretive center.

Outcome: Increased awareness and community support.

#### **Activities**

1. Identify themes for the displays and signage, and locate areas to display material.
2. Select a contractor to create the displays and interpretive center.
3. Create and distribute the finished displays.
4. Build out one or more interpretive centers.

#### **Location**

The scope of interpretive materials will cover the entire Reserve and surrounding areas. The first interpretive displays will be developed for the offices in Hilo and Honolulu, but they may also be considered for other islands.

#### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Communications Branch (NMSP HQ)
- Reserve/Sanctuary Advisory Council
- State of Hawai'i partners
- USFWS partners
- NMFS partners

#### **Timeline and Due Dates**

To be determined.

#### **Costs**

This strategy will involve in-house staff labor plus additional costs for creation, publication, and distribution.

#### **Performance Measures**

- Completion of signage and displays, and interpretive centers.





## Action Plan: Cultural Resources

### Description/Background

The Executive Order directs the Secretary to identify and coordinate with Native Hawaiian interests on culturally significant, noncommercial subsistence, cultural, and religious uses and locations within the Reserve. This action plan provides an outline to research cultural and historical resources related to Native Hawaiians as well as other people connected to the area through shipping, trade, and World War II activities.

Native Hawaiian interests will be defined by cultural and historical experts, knowledgeable *kupuna* (elders), fishers experienced with the NWHI, and the Cultural Resources Subcommittee of the Council. These interests include cultural practices and significant locations within the Reserve, the Hawaiian Islands National Wildlife Refuge, Midway Atoll National Wildlife Refuge and State of Hawai'i waters as part of the coordinated management called for by the Executive Order. In addition, Reserve staff will work with Native Hawaiians to develop criteria to assess the cultural significance of any noncommercial subsistence, cultural, and religious use, and will develop management guidelines regarding access to the NWHI Archipelago for the conduct of culturally significant practices.

The Executive Order also directs the Secretary to identify the areas where appropriate Native Hawaiian uses of the Reserve's resources may be conducted without injury to the Reserve's coral reef ecosystem and related marine resources and species. Such a condition is consistent with the centuries old practices of *kuleana* (responsibility) and *mālama* (care). As a result these uses will serve to strengthen the Reserve's management efforts.

The natural elements of the Northwestern Archipelago are considered early ancestors born in primordial times and therefore the older relatives of living Native Hawaiians. Both share an interdependent, *'ohana* (family) based relationship which requires *mālama* to be given to the older siblings who in turn provide for the well being of the younger. Presently, much of the information about this Archipelago is scattered. This action plan is aimed at researching, assessing, compiling, and cataloging information regarding the culture and history of the



NWHI Archipelago from such sources as *mele* and *oli* (song, chant), oral histories and accounts, Hawaiian language newspapers, ship logs and journals, and archaeological and anthropological studies as well as historic accounts by living Native Hawaiians. In addition, the information gathered will be documented in reports and through cultural forms of expression such as *mele* (song, chant) and *hula* (dance), and disseminated to the public as part of the process of education about this unique and fragile place.

Oral traditions passed down through *mele* reference islands beyond Lehua and recall the travels of seafaring Polynesian ancestors traversing through this vast area on their way to and from the main Hawaiian Islands. The physical remnants of *wahi kupuna* (ancestral places) on Nihoa and Moku Manamana (Necker) including habitation, agricultural, religious and burial sites, as well as the recovery of artifacts that served subsistence and spiritual functions, attest to the use of these islands and the surrounding oceans by Native Hawaiian ancestors. The Princess Bernice Pauahi Bishop Museum located in Honolulu is the principal institution conducting archaeological studies in the Northwestern Hawaiian Islands. Native Hawaiian interests will provide these researchers with protocols that share culturally sensitive values and practices that should be observed during research access trips to the Archipelago.

Research projects from the University of Hawai'i have revealed shipwrecks that span several centuries. These wrecks and other artifacts provide valuable insight into patterns of trade and exploration in the Pacific. In addition, it is important to examine activities associated with historical shipping, like resource extraction and island reconfiguration, in order to gain an understanding of how they affected the ecosystem.

Historical resources from a more recent time include the U.S. Naval base on Midway. This base was an indispensable element in the decisive Battle of Midway in June 1942. This battle was a turning point in World War II and is a significant piece of U.S. history. In recent years the base has been replaced by the Midway Atoll National Wildlife Refuge.

The Reserve staff has devised the following strategies to address cultural resource mandates in the Executive Order. In addition to these, the Reserve will work with and support the Bishop Museum and others on research deemed culturally significant in the NWHI.

### Strategies

- Strategy 1: Conduct Cultural Resources Literature Review.
- Strategy 2: Develop Cultural Collections Database.
- Strategy 3: Identify Culturally Significant Uses and Locations in the Reserve.
- Strategy 4: Develop Cultural Resource Education Program.
- Strategy 5: Coordinate with the Polynesian Voyaging Society on a Voyage to the NWHI.

### Summary of Resource Needs

The main costs will be in-house staff time and a grant of \$170,000 made to the Bishop Museum for cultural and natural resource inventories (including Strategies 1 and 2). Strategy 4 will incur additional costs for travel. Strategy 5 includes a contract.





## Strategy 1: Conduct Cultural Resources Literature Review

### **Description and Need for the Strategy**

This literature review project promotes identification, synthesis, and development of a concise, searchable, bibliographic reference and web-based resource on traditional Native Hawaiian “subsistence, cultural, and religious uses” of the NWHI. It provides a baseline for identifying and coordinating with Native Hawaiian interests, appropriate future scientific research, environmental assessments, management decisions, and education/outreach about the Reserve, its resources, and efforts to conserve them.

### **Results of the Strategy**

#### Outputs:

- A comprehensive review and evaluation of published and unpublished materials pertaining to cultural activities and sites in the NWHI.
- Presentation of research results in a web-searchable database.

Outcome: A widely distributed working knowledge of NWHI cultural resources.

### **Activities**

1. Identify and organize a wide variety of documentary media archived at the Bishop Museum including:
  - *Mele*.
  - Personal journals, expedition notes, maps, illustrations, and photographs.
2. Contact Hawaiian researchers at major relevant institutions to gain access to publications of limited distribution. These publications will contain information about:
  - Journals of 18th and 19th century European explorers and traders.
  - Museum catalogues containing plates and /or descriptions of Hawaiian cultural objects.
3. Develop web-searchable annotated computerized bibliography with fields that include:
  - Bishop Museum holdings.
  - Pertinent published literature.
  - Unpublished material.
  - Hawaiian and English cultural descriptions.

### **Location**

The literature review will be conducted from the Bishop Museum and cover the entire scope of the Reserve and surrounding areas, including the Hawaiian Islands National Wildlife Refuge, Midway Atoll National Wildlife Refuge, and the State of Hawai'i waters as part of the coordinated management approach called for in the Executive Order.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator





- Reserve/Sanctuary Advisory Council
- Cultural Resources Subcommittee of the Council
- The Bishop Museum
- State of Hawai'i partners
- USFWS partners
- University of Hawai'i

### **Timeline and Due Dates**

This strategy will be completed by the end of FY02.

### **Costs**

The costs for this project include in-house staff labor plus additional funding contained in a larger grant of \$170,000 to the Bishop Museum made in FY01.

### **Performance Measures**

- Complete cultural unpublished and published documentary web-searchable database by the end of FY02.



## Strategy 2: Develop Cultural Collections Database

### **Description and Need for the Strategy**

Effective management of the Reserve requires a clearer understanding of ancient Native Hawaiians use of marine resources in the NWHI, and how reestablishing or increasing these traditional activities may impact long-term conservation and protection of Reserve resources. Identifying, describing, interpreting, and presenting an overview of the extant cultural collections from the NWHI will enhance the knowledge about traditional resource exploitation and provide baseline data for appropriate future scientific research, environmental assessments, and management decisions. These efforts will also enhance education/outreach about the Reserve, its resources, and efforts to conserve them.

### **Results of the Strategy**

#### Outputs:

- A comprehensive review of the NWHI cultural collections in the Bishop Museum's holdings.
- Appropriate descriptive and interpretive documentation of cultural items in these collections.
- Presentation of results in a key word searchable web-based database.

Outcome: A means to enhance and share knowledge about Hawaiian culture in the NWHI with a geographically dispersed audience.

### **Activities**

1. Review NWHI collections from the Bishop Museum's holdings, Office of Hawaiian Affairs, University of Hawai'i, State Historic Preservation Office, and the Hawai'i Department of Land and Natural Resources.
  - Assess and compile records of acquisition, legal ownership, deaccession/repatriation history.
  - Determine conservation condition of objects.
  - Enter information into a searchable web-based database.
2. Describe the NWHI cultural objects collected by the Tanager Expedition to Nihoa and Necker islands, their collection history, and provide an interpretation of their cultural significance on the basis of the scientific standards and approaches of the early twentieth century.
  - Provide a descriptive catalog of the Tanager Expedition.
  - Put catalog into a web based format searchable using Hawaiian or English key words.
  - Produce web based copies of photographic plates and illustrations of Tanager Expedition.

### **Location**

This study will be conducted at the Bishop Museum and will focus on the entire NWHI.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Marine Archaeologist (NMSP HQ)
- Reserve/Sanctuary Advisory Council





- State of Hawai'i partners
- The Bishop Museum
- University of Hawai'i

### **Timeline and Due Dates**

This strategy began in late FY01 and should be completed by the end of FY02.

### **Costs**

The costs for this project will include in-house staff labor plus additional funding contained in a larger grant of \$170,000 to the Bishop Museum made in FY01.

### **Performance Measures**

- Completion of web-searchable database containing information and images about the Tanager Expedition based on Hawaiian and scientific descriptive and interpretive methods by the end of FY02.



### Strategy 3: Identify Culturally Significant Uses and Locations in the Reserve

#### **Description and Need for the Strategy**

Once the information about the NWHI Archipelago is compiled, it will become necessary to interpret the information in order to put it to practical use. This strategy seeks to assess the compiled information in order to identify culturally significant, noncommercial subsistence, cultural, and religious uses and locations within the Reserve, the Hawaiian Islands National Wildlife Refuge, Midway Atoll National Wildlife Refuge, and State of Hawai'i waters. In addition, the compiled information will be used to develop criteria to assess the cultural significance of any proposed noncommercial subsistence, cultural, and religious use and to develop protocols regarding access to the Archipelago for the conduct of such culturally significant uses and practices.

#### **Results of the Strategy**

Output: Identify culturally significant, noncommercial subsistence, cultural, and religious uses within the reserve and surrounding area.

Outcome: A better understanding of the relationship of the Native Hawaiians and the Reserve.

#### **Activities**

1. The Bishop Museum will present the compiled information to the Reserve staff, Cultural Resources Subcommittee of the Council, other Native Hawaiian interests, and the Council to help identify culturally significant noncommercial subsistence, cultural and religious uses and locations within the Reserve, the Hawaiian Islands National Wildlife Refuge, Midway Atoll National Wildlife Refuge, and State of Hawai'i waters.
2. These partners will then develop criteria to help assess proposed uses in order to determine whether such proposed cultural and religious uses are culturally significant, noncommercial, and subsistent in nature.
3. These partners and other interested parties will develop protocols for cultural uses as well as scientific research conducted in the Reserve, the Hawaiian Islands National Wildlife Refuge, Midway Atoll National Wildlife Refuge, and State of Hawai'i waters. Protocols would address culturally related issues such as the treatment of *wahi kupuna* (ancestral sites), artifacts, *iwi kupuna* (ancestral bones) and *moepu* (funerary objects), and subsistence fishing for on-island consumption, among other possibilities. Included will be an ongoing assessment of the impacts of research activities on cultural resources.
4. The Reserve, in consultation with all the other parties listed above, will determine acceptable cultural and religious uses including subsistence fishing, gathering, and other appropriate culturally significant activities.





## Location

This strategy will cover the entire Reserve and surrounding areas as appropriate.

## Staff and Partners

- Reserve Coordinator
- Assistant Reserve Coordinator
- Marine Archaeologist (NMSP HQ)
- Reserve/Sanctuary Advisory Council

## Timeline and Due Dates

This project will begin once the cultural resources literature review and collections database are completed in FY02 and continue into FY03.

## Costs

The costs for this project will mainly be in-house staff labor, boat expenses, and other costs associated with planning.

## Performance Measures

- Completion of the identification of culturally significant noncommercial subsistence, cultural and religious uses and locations within the Reserve, the Hawaiian Islands National Wildlife Refuge, Midway Atoll National Wildlife Refuge, and State of Hawai'i waters.
- Completion of the development of cultural significant uses criteria to assess the appropriateness of proposed uses in Reserve waters.

## Relation to Other ROP Strategies and Other Projects

This strategy will be coordinated with Strategy 6 of the Operations Action Plan, "Identify Types and Areas for Recreation, Tourism, and Commercial Uses."



## Strategy 4: Develop Cultural Resources Education Plan

### Description and Need for the Strategy

The Executive Order directs the enhancement of public awareness, understanding, and appreciation of the Reserve. The Reserve staff will work with the Bishop Museum to collate cultural resource information and develop plans to disseminate it.

### Results of the Strategy

#### Output:

- Identification and acknowledgment of traditional names of islands and atolls.
- Plan for disseminating information on Native Hawaiian communication including *mele* (song), *hula*, and plays.

Outcome: Increased awareness, understanding, and appreciation of the Reserve and the rest of the NWHI by the general public.

### Activities

1. Identify and acknowledge traditional names of atolls and islands in the NWHI.
2. Develop a series of activities designed to disseminate cultural resource related information gathered by Bishop Museum and Reserve staff.

### Location

Education materials will be widely distributed.

### Staff and Partners

- Reserve Coordinator
- Assistant Reserve Coordinator
- Marine Archaeologist (NMSP HQ)
- Reserve/Sanctuary Advisory Council
- State of Hawai'i partners
- The Bishop Museum
- Native Hawaiian cultural experts and interests

### Timeline and Due Dates

This strategy will begin upon completion of Strategies 1 and 2 and then be ongoing.

### Costs

The costs for this strategy will include in-house staff labor.





## Strategy 5: Coordinate with the Polynesian Voyaging Society on a Voyage to the NWHI.

### **Description and Need for the Strategy**

The Polynesian Voyaging Society (PVS) was founded in 1973 to research how Polynesian seafarers discovered and settled on nearly every habitable island in the Pacific Ocean prior to European exploration in the 16th century. Since 1975, PVS has built and launched two replicas of ancient canoes to retrace migration routes and recover traditional canoe-building and wayfinding arts. The PVS is in the initial planning stages for a voyage to the NWHI. The voyage will combine scientific research with traditional voyaging practices and educational outreach to explore this culturally and environmentally significant region.

### **Results of the Strategy**

Output: Voyage logistics

Outcome: Messages of environmental awareness and sustainability, with the goal of encouraging active stewardship of the NWHI.

### **Activities**

NOS will work with the PVS and other partners to help plan and conduct the voyage, and to develop educational products. Reserve staff will provide support through coordination and making logistical arrangements.

### **Location**

This first leg of the voyage will take place in the NWHI (later legs will encompass the Line Islands before the return trip to the main Hawaiian Islands). The educational and scientific products resulting from the voyage will be made available to the general public.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Polynesian Voyaging Society
- The Bishop Museum
- USFWS partners
- State of Hawai'i partners
- University of Hawai'i and other educational partners

### **Timeline and Due Dates**

The voyage is expected to begin in August 2002 and be completed by late December; logistical planning is underway. The educational material will be generated after the completion of the voyage.

### **Costs**

NOS has provided \$60,000 from the FY01 Coral Reef funding to help coordinate the voyage.



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**Performance Measures**

- Voyage completed by the end of FY02.
- Educational products created and distributed.







## Action Plan: Research and Monitoring

### Background/Context

The Executive Order directs the Secretary to conduct research, long-term monitoring, and assessment of the Reserve. Monitoring projects will play a central role in the NWHI Reserve. These projects will develop a baseline of information that is critical for resource management decisions. Several large-scale monitoring projects have been proposed that involve multiple federal and state agencies as well as local partners. For projects not directly funded by the Reserve or outside the scope of the staff's technical expertise, Reserve staff will provide *assistance as needed*.

### Strategies

- Strategy 1: Facilitate the Bank Monitoring Study.
- Strategy 2: Coordinate With Current and Past Research Projects.
- Strategy 3: Develop a Research Staff and Agenda.
- Strategy 4: Assist in Planning and Preparation for NOW-RAMP 2002.

### Summary of Resource Needs

Reserve and NOAA in-house staff labor and:

- Strategy 1: Additional costs for ship time and technical support.
- Strategy 2: Additional costs for part of the grant to the Bishop Museum.



## Strategy 1: Bank Monitoring Study

### **Description and Need for the Strategy**

The Executive Order includes a number of specific measures regarding bottomfishing within the Reserve. Of particular interest are the rules regarding two RPAs, Raita Bank and the first bank west of St. Rogatien Bank (West St. Rogatien). The Executive Order specifically states that after five years, bottomfishing will only be allowed around these two RPAs, if it is determined that the continuation of such activities will have no adverse impact on the resources of the banks.

This project will involve the cooperation and financial support of the Hawai'i Undersea Research Laboratory, NMSP, and NMFS. The primary goals will be to establish monitoring sites on these deepwater banks, determine an ecological baseline for the sites, and locate the geographic center of the banks.

### **Results of the Strategy**

#### Outputs:

- Species identification;
- Habitat characterization;
- Established monitoring sites;
- Baseline ecological information;
- Location of the center of Raita and West St. Rogatien Banks; and
- Precious coral bed locations.

Outcome: Determination of impacts of ground fishing on the banks, assistance in monk seal conservation, and illumination of deep reef community structure, all of which will assist with Reserve management.

### **Activities**

1. Interview fishers, NMFS, and WPRFMC to determine levels and locations of bottom handline fishing currently underway.
2. Scout potential monitoring sites with 18 remotely operated vehicle (ROV) dives.
3. Establish monitoring sites and collect year one data with six to eight submersible dives.
4. Use multibeam technology to find the center of the banks.
5. Begin processing data, characterizing the banks, and importing information into a Geographic Information System (GIS) database.
6. Develop an effective visual sampling scheme to determine impact of fishing on the banks.
7. Produce a highlights video, educational materials, and a "three-dimensional flythrough" of the mission for the web.

### **Location**

This strategy took place on Raita and West St. Rogatien Banks in FY01, and should be conducted each year for four additional years.

### **Staff and Partners**





- Reserve Coordinator
- Assistant Reserve Coordinator
- Science Team (NMSP HQ)
- NMFS partners
- Office of Oceanic and Atmospheric Research, NOAA
- Hawaiian Undersea Research Laboratory

### **Timeline and Due Dates**

The first phase of this strategy has been completed. Monitoring will continue every year for four years.

### **Costs**

This strategy will include in-house staff labor and additional costs for ship time and technical support during the first year. Continued funding for monitoring will be required to maintain the project for four years. Costs for FY01 were \$200,000.

### **Performance Measures**

- Next mission planned by the end of FY02.

### **Relation to Other ROP Strategies and Other Projects**

This strategy has been planned as a complement to the 2000 Northwest Hawaiian Islands Rapid Reef Assessment and Monitoring Program (NOW-RAMP) expedition and the current shallow water mapping strategy.





## Strategy 2: Coordinate with Current and Past Research Projects

### **Description and Need for the Strategy**

An inventory of past and present research activity in the NWHI is necessary to avoid duplication of efforts and to help facilitate the implementation of future research. An inventory will provide information to help better understand past trends that may affect the Reserve and provide a reference base for future access.

The Bishop Museum will provide a bibliographic database that will document all of the marine research in the region by the end of FY02. In the interim, the Reserve staff will develop a comprehensive list of current research related to the management of the Reserve. This list will provide a starting point for the coordination of research and management efforts in the future.

### **Results of the Strategy**

#### Outputs:

- A clear picture of all research conducted in the Reserve and surrounding waters.
- Open and efficient communication with other agencies, institutions, and researchers.

Outcome: An integrated approach to new research projects that will complement existing work and look beyond jurisdictional boundaries.

### **Activities**

1. Identify all of the research currently underway in the NWHI including, but not limited to, the following projects conducted by NOAA and USFWS:

- ecological assessment and monitoring;
- in-situ oceanographic observations and monitoring stations;
- trophic modeling studies;
- bottom fish habitat identification;
- terrestrial and sea bird research;
- marine mammal research; and
- shark research.

2. Review and evaluate all unpublished and published materials pertaining to marine resources and species in the NWHI.

3. Present research results in a comprehensive web-searchable bibliographic database, which will be cross-indexed by species and annotated background information.

### **Location**

This project will relate to the entire Reserve and surrounding areas, and will be conducted from the Reserve office and the Bishop Museum.





## Staff and Partners

- Reserve Coordinator
- Assistant Reserve Coordinator
- Science Team (NMSP HQ)
- The Bishop Museum
- Reserve/Sanctuary Advisory Council
- State of Hawai'i Department of Land and Natural Resources
- NMFS partners
- USFWS partners
- U.S. Navy
- University of Hawai'i
- Non-governmental organizations

## Timeline and Due Dates

The information on current research in the NWHI is readily available and will be collected in early FY02.

## Costs

The costs include in-house staff labor and part of the grant to the Bishop Museum, but may require more resources in FY02.

## Performance Measures

- A bibliographic database that will document all of the marine research in the region by the end of FY02.





### Strategy 3: Develop a Research Staff and Agenda

#### **Description and Need for the Strategy**

A long history of research and monitoring exists in the NWHI. The Reserve will develop a plan that complements and expands upon the work of others by identifying and fulfilling research needs that will assist in sound management.

#### **Results of the Strategy**

Outputs:

- Research Coordinator.
- Research and monitoring priority list.

Outcome: A long-term research and monitoring plan that is well integrated with other projects in the region.

#### **Activities**

1. Prepare a position description and hire a Reserve Research Coordinator. This person will assist in developing and guiding research activities.
2. Develop procedures for identifying, prioritizing, and evaluating research and monitoring activities within the Reserve such as:
  - A baseline inventory of species and habitats in the Reserve;
  - Identification of shallow and deep reef monitoring sites;
  - A plan to investigate connectivity, relationships, and interdependence;
  - An assessment of impacts of historical and contemporary usage of Reserve waters, including commercial and recreational fishing, ship transiting, Native Hawaiian subsistence fishing and gathering, cultural restoration and religious uses, permitted research and monitoring activities, and collection of marine organisms for the aquarium trade;
  - An assessment of potential threats to the Reserve from cruise ship access, educational voyages, recreational activities, military exercises, research, and potential future activities that may compromise the existing integrity of the ecosystem;
  - A Reserve bibliography and library of published manuscripts, letters, research findings, historical accounts, cultural documents, magazine and newspaper articles, and books;
  - Plan for a NWHI Research Symposium; and
  - Analysis of NOW-RAMP 2000 data and planning for a 2003 mission.

#### **Location**

The scope of the Research Coordinator's duties will be the entire NWHI.

#### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Science Team (NMSP HQ)



- Reserve/Sanctuary Advisory Council
- NMFS partners
- USFWS partners
- State of Hawai'i partners

### Timeline and Due Dates

The development of a long-term research agenda will be an ongoing process.

### Costs

The cost for this strategy will include in-house staff labor.

### Performance Measures

- Draft research agenda produced within 1 year of hiring research coordinator.





## Strategy 4: Assist in Preparing and Planning for NOW-RAMP 2002

### **Description and Need for the Strategy**

This strategy builds upon the Northwest Hawaiian Islands Rapid Reef Assessment and Monitoring Program (NOW-RAMP), a six-week expedition conducted in autumn of 2000 to undertake an assessment of the NWHI region. Ten agencies and organizations participated in this expedition to research and map the habitats and resources of the NWHI, which included rapid ecological assessments at 170 different sites, towed underwater surveys, hundreds of individual dives, and collection of hundreds of samples.

In collaboration with other resource and research agencies, the Reserve will fund a follow up Rapid Ecological Assessment and Monitoring cruise along the chain in 2002, following up on the work conducted in 2000 and related work of the NMFS Honolulu Lab. This mission will also include ground truthing and other work associated with habitat classification mapping efforts started in FY01. The Reserve will assist in the planning and preparation for the this project. Results from the expedition will significantly increase the knowledge about the NWHI and help with the preparation of a draft Sanctuary Management Plan.

### **Results of the Strategy**

#### Outputs:

- Publication and distribution of expedition results.

Outcome: Biological characterization of the NWHI.

### **Activities**

1. Assist in planning and preparation for NOW-RAMP expedition.

### **Location**

The NOW-RAMP expedition in 2002 will take place in selected areas throughout the NWHI waters.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Science Team (NMSP HQ)
- Reserve/Sanctuary Advisory Council
- State of Hawai'i partners
- NMFS partners
- National Centers for Coastal Ocean Systems, NOAA
- USFWS partners
- U.S. Navy
- University of Hawai'i
- Non-governmental organizations



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### Timeline and Due Dates

This project will be completed by the end of FY02.

### Costs

The cost for this strategy is \$275,000, which includes in-house staff labor.

### Performance Measures

- Successful planning and implementation of NOW-RAMP expedition by the end of FY02.





## Action Plan: Mapping

### Background/Context

The NWHI Mapping Action Plan relies on a truly cooperative interagency effort. This action plan will consolidate data from several mapping projects scheduled in the NOS and NMFS Coral Implementation Plans. In addition, map products generated by the USFWS will play a significant role in the mapping of this region.

Updated charts and shallow water habitat characterizations are needed to accurately define the Reserve boundaries and manage the resources within it. Current data for the region is outdated or nonexistent. Requirements are made within the Executive Order to update this information. NOS and its partners have designed the following strategies to address these requirements.

### Strategies

- Strategy 1: Assist in the Development of a Working Chart.
- Strategy 2: Support Other Mapping Projects.

### Summary of Resource Needs

In-house staff labor and:

- Strategy 1: additional costs in NOS Coral Reef Funding to support all mapping projects.
- Strategy 2: additional costs in NOS Coral Reef Funding to support all mapping projects.



## Strategy 1: Assist in the Development of a Working Chart

### Description and Need for the Strategy

The Executive Order allows the Secretary, after consultation with the Governor of Hawai'i to make technical modifications to the boundary of the Reserve for the purposes of clarity and ease of identification. Before any such modifications can be made, a functional chart must be produced.

A working chart depicting the Reserve and RPA boundaries is needed for management and enforcement activities. This project will adjust existing chart information to reflect current geographic information derived from satellite imagery and field data. These data will be used to develop boundaries delineating the overall Reserve and RPAs as defined in the Executive Order. The new working chart will be made available to resource users, managers, and enforcement officers, and represents the first step in a larger, more detailed mapping effort in the region that will be underway over the next five years. New charts are essential to the Sanctuary designation process.

### Results of the Strategy

Output: A working chart of the Northwestern Hawaiian Islands and the Reserve. This chart will include the best available information on the location of geographic features, and Reserve boundaries.

Outcome: Increased accuracy of geographical data depicting the NWHI.

### Activities

The Reserve staff will assist other NOAA staff who have the primary responsibility for this project, which involves the following activities:

1. Update current chart data using best available information.
2. Generate draft GIS compatible boundary files.
3. Produce working chart depicting the Reserve and RPA boundaries.
4. Publish notification in the *Federal Register* referencing the boundaries.

### Location

The working chart and Reserve boundaries will be generated by NOAA staff and depict the NWHI region.

### Staff and Partners

- Reserve Coordinator
- Assistant Reserve Coordinator
- NOS General Counsel
- NMFS partners
- National Geodetic Survey, NOAA
- Office of Coast Survey, NOAA





- Special Projects Office, NOAA
- Coastal Services Center, NOAA
- State of Hawai'i partners
- USFWS partners

### **Timeline and Due Dates**

The project began in late FY01. The working chart is a priority for FY02.

### **Costs**

This project includes in-house staff labor and additional funding that may be provided by NOS Coral Reef funding. These funds will support ship time and technical support for all mapping projects.

### **Relation to Other Strategies**

This strategy is the first step in a comprehensive mapping process of the NWHI.



## Strategy 2: Support Other Mapping Projects.

### **Description and Need for the Strategy**

A number of mapping projects are either ongoing or proposed for the NWHI that are of benefit to the operation of the Reserve and the designation process for a Sanctuary. Although the Reserve does not have primary responsibility for these projects, Reserve staff will provide assistance and support where appropriate.

### **Results of the Strategy**

**Output:** New or updated, corrected maps of the NWHI, including identification of different habitats.

**Outcome:** This project will aid resource managers by updating map information that is currently out of date or providing data currently missing, enhancing management and conservation efforts.

### **Activities**

One of the primary projects is being conducted by a number of agencies, including the U.S. Geological Service (USGS), NOAA, USFWS, and the State of Hawai'i, to begin mapping the shallow water regions (<20m) of the NWHI, including State waters. Primary activities include:

1. Map eight to ten locales within the NWHI.
2. Acquire and calibrate imagery of NWHI.
3. Develop a classification scheme for monitoring and data interpretation.
4. Establish Global Positioning System (GPS) monuments and tide controlled benchmarks for future shipboard bathymetry.
5. Develop a cloud-free mosaic of specific locales.
6. Develop pseudo-bathymetry algorithm.
7. Develop image-processing procedures.
8. Ground truth maps at point locations.
9. Generate GIS layers depicting benthic habitat.

The Reserve staff will work with other NOAA staff to help support these efforts.

Another important project involves the development of a tool that will perform underwater positioning system surveys, to produce digital images and GPS coordinates of the shallow water areas in which it is operated. Researchers in the NWHI will be able to use this system to increase the resolution of current shallow water mapping efforts. This effort will be led by the National Geodetic Survey (NGS), working with the University of Hawai'i, National Center for Coastal and Ocean Science, and NOAA.

Other mapping projects may be developed during the intended life span of this ROP; the role of the Reserve in such projects will be determined as necessary and appropriate.





## Location

Mapping efforts will take place throughout the NWHI.

## Staff and Partners

- Reserve staff
- NMFS partners
- Special Projects Office, NOAA
- Coastal Services Center, NOAA
- Office of Coast Survey, NOAA
- National Geodetic Survey, NOAA
- USGS partners
- USFWS partners
- State of Hawai'i partners

## Timeline and Due Dates

Some of this work has already begun; other projects are expected to begin in FY02. Timelines for completion vary by project.

## Costs

This strategy includes in-house staff labor and may also involve additional funding for ship time and technical support for all mapping projects as available and appropriate.

## Relation to Other Strategies

This strategy complements earlier mapping work done on such projects as the 2000 NOW-RAMP and 2001 Ocean Frontier expeditions.

## Performance Measures

The Reserve completes its identified support activities as necessary.





## Action Plan: Restoration

### Background/Context:

The Executive Order directs the Secretary to restore or remediate any degraded or injured resources of the Reserve. Several restoration projects are proposed or ongoing in the areas surrounding the Reserve, including:

- proposed removal of contaminated landfill sediments (PCBs and lead) from Tern Island by the USCG in FY01 and FY02;
- proposed monitoring of Tern Island Reef during a seawall construction project;
- proposed cleanup or removal of several cubic meters of contaminated sand (carbofuran) from Laysan Island;
- ongoing restoration of native vegetation at Laysan Island;
- ongoing evaluation of relationship between a former Navy hazardous materials (HazMat) storage area on Midway Atoll and chronic seabird nest failure on a nearby beach; and
- removal of contaminated sediments and a grounded tug and barge on Midway Atoll by the U.S. Navy, and ongoing monitoring of the area.

While NOS recognizes the importance of restoration activities both outside the Reserve that can effect Reserve operations and those that may also be needed within the Reserve, specific funding has not been set aside in the Reserve budget, given the number of other high priority activities that were needed to establish Reserve operations and the lack of specific information about the needs and priorities for restoration within the Reserve itself.

### Strategies

- Strategy 1: Conduct Assessment of Restoration Needs.

### Summary of Resource Needs

Mainly in-house labor and help from partners.



## Strategy 1: Conduct Assessment of Restoration Needs

### **Description and Need for the Strategy**

The Executive Order directs the Secretary to restore or remediate any degraded or injured resources of the Reserve. While the NMSP recognizes the importance of restoration activities, there is no assessment of where restoration efforts are most critical.

### **Results of the Strategy**

Output: Assessment of where restoration efforts are most critical and potentially effective for the Reserve.

Outcome: Prioritization of restoration sites.

### **Activities**

The Reserve staff will review existing information and consult with the Reserve/Sanctuary Advisory Council, management partners, and other knowledgeable parties to develop a priority list of restoration areas/projects that will be implemented in later years.

### **Location**

The entire Reserve and surrounding areas will be considered while this priority list is built.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Science Team (NMSP HQ)
- NMSP Response and restoration staff (HQ)
- Office of Response and Restoration, NOS
- State of Hawai'i partners
- NMFS partners
- USFWS partners
- USCG partners
- U.S. Navy

### **Timeline and Due Dates**

The strategy should be completed in time to be incorporated into a draft Sanctuary Management Plan, expected by the end of FY03.

### **Costs**

The costs will mainly be in-house staff labor.



## Performance Measures

- Completion of written priority list of restoration projects for implementation by the end FY03.

## Relation to Other ROP Strategies and Other Projects

This strategy is related to the Emergency Response and Damage Assessment Action Plan and may also have ties to research and monitoring strategies. Coordination with ongoing and proposed restoration projects such as those listed at the beginning of this action plan will occur.

The Reserve-wide assessment will be critical to establishing an overall baseline of ecosystem health in the Reserve. This is critical to any future response and restoration effort post-incident. This information is also integral to developing effective contingency plans.





## **Action Plan: Emergency Response and Damage Assessment**

### Background/Context:

Despite their remote location, the NWHI have been subject to a variety of incidents that threaten the Reserve and surrounding areas. The most recent boat groundings have been the F/V *Paradise Queen* that went aground at Kure Atoll in 1999 and the F/V *Swordman II* that went aground at Pearl and Hermes Reef in 2000. An assessment of the damage due to the latter grounding is ongoing. Four hundred meters of permanent monitoring transects have been established; initial fieldwork has been completed, and analysis is now underway by the USFWS and the State of Hawai'i.

Other ongoing or proposed assessment projects include:

- an ongoing project to locate, analyze, and remove contaminated sediments in the lagoon waters around Tern and East Islands (French Frigate Shoals); and
- a completed analysis for environmental contaminants of blood and blubber samples from Hawaiian monk seals at French Frigate Shoals. See also the list of ongoing and proposed restoration projects contained in the preceding Restoration Action Plan.

In light of recognized damage from past vessel groundings and shipwrecks in the NWHI, there is a clear need for internal rapid response capacity to address emergency situations that threaten the integrity of the Reserve. This capacity would include coordinating and working with the U.S. Coast Guard and other partners to quickly remove grounded vessels from the coral reefs and to clean up the associated marine debris and related pollution resulting from such groundings. The longer grounded vessels, related debris, and associated pollution remain on the reefs, the more severe the damage to the reefs will be and the higher the likelihood that the debris and pollution could threaten the marine resources, including endangered marine mammals of the Reserve.

### Summary of Resource Needs

Strategy 1: in-house and other NOAA staff labor.

Strategy 2: in-house and other NOAA staff labor, travel, and training.





## Strategies

- Strategy 1: Compile a List of all Responder and Stewardship Agencies and Available Resources To Respond in Emergency Response Situations.
- Strategy 2: Develop a Contingency Plan to Determine How Available Agencies and Resources Will Meet the Needs of Emergency Response to Minimize Impacts.

### Strategy 1: Compile a List of all Responder and Stewardship Agencies and Available Resources To Respond in Emergency Response Situations.

#### **Description and Need for the Strategy**

A list of agencies and available resources is necessary to determine if the available level of response sufficiently meets the needs for emergency response in the Reserve and surrounding areas. Typical threats include ship groundings, collisions, marine debris, oil spills, and chemical or other contaminants spilled or leaching from former dump sites.

#### **Results of the Strategy**

Output: An inventory of existing emergency response and damage assessment resources and personnel.

Outcome: A better means of communication and response during an emergency situation.

#### **Activities**

The Reserve staff and its management partners will work with NOAA HQ, the Office of Response and Restoration (ORR), and the Oceania Regional Response Team and other response groups to inventory the existing response and assessment structures for the NWHI.

#### **Location**

The inventory will cover the entire Reserve and surrounding areas.

#### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Office of Response and Restoration, NOS
- NMSP Response and Restoration staff (HQ)
- State of Hawai'i partners
- NMFS partners
- USCG partners
- USFWS partners
- U.S. Navy
- Non-governmental organizations





### **Timeline and Due Dates**

The inventory will be completed by the end of FY02.

### **Costs**

The costs will be mainly in-house staff labor.

### **Performance Measures**

- Completion of the inventory and analysis of existing response and assessment resources by the end of FY02.

### **Relation to Other Strategies**

This strategy is related to the Restoration Action Plan and may also have ties to research and monitoring strategies.



## Strategy 2: Develop a Contingency Plan to Determine How Available Agencies and Resources Will Meet the Needs of Emergency Response to Minimize Impacts.



### **Description and Need for the Strategy**

If it is determined that existing capabilities are insufficient, a contingency plan to enhance existing capabilities is necessary to protect Reserve resources, including endangered marine mammals that frequent Reserve waters. Vessel groundings have on numerous occasions damaged reefs in the NWHI. Often, there is insufficient insurance for vessel removal, debris cleanup, and damage mitigation. This strategy is necessary to address these deficiencies and meet the goals of conservation and preservation of the natural character of the NWHI.

### **Results of the Strategy**

Output: An assessment of existing emergency response and damage assessment resources and personnel and the completion of an emergency response contingency plan.

Outcome: Enhanced response capabilities.

### **Activities**

The Reserve staff will assess the existing response and assessment structures for the NWHI and draft a contingency plan.

### **Location**

The assessment will cover the entire Reserve and surrounding areas.

### **Staff and Partners**

- Reserve Coordinator (on-site)
- Assistant Reserve Coordinator (on-site)
- Office of Response and Restoration, NOS
- NMSP Response and Restoration staff (HQ)
- Agency partners as appropriate

### **Timeline and Due Dates**

The analysis will be completed by the end of FY02.

### **Costs**

The costs will be mainly in-house staff labor and training.

### **Performance Measures**

- Completion of an emergency response contingency plan by the end of FY03.





## Action Plan: Marine Debris

### Background/Context

The Executive Order directs the Secretary to address the cleanup and prevention of marine debris in the Reserve. Many reefs in the NWHI and throughout the Pacific have been inundated with large amounts of debris lost by commercial fishing operations or dispersed from other marine or terrestrial sources. These objects degrade reef health by abrading, smothering, and dislodging corals and other benthic organisms, preventing recruitment on reef surfaces, and entangling fish, marine mammals, crustaceans, and other mobile species.

Due to the location of the NWHI and current patterns in the Pacific, this area is particularly vulnerable to collecting marine debris. An interagency effort spearheaded by the NMFS has begun to address this problem. NMFS in collaboration with USCG, NOS, U.S. Navy, USFWS, the State of Hawai'i, the Ocean Conservancy (formerly the Center for Marine Conservation), and others removed 78 tons of marine debris from 1998 to 2000. However, an estimated 1,000 metric tons remain on reefs and beaches, not including debris that continues to wash along the reefs.

In recognition of the magnitude of this problem, the Executive Order directs the Reserve Operations Plan to address removal and prevention of marine debris in the Reserve. The Reserve will build upon existing efforts of the interagency partnership, including the recommendations outlined at the International Marine Debris Conference, 2000, to address this very serious threat to the resources.

### Strategies

- Strategy 1: Assist in Marine Debris Removal.
- Strategy 2: Support Marine Debris Web Site.
- Strategy 3: Assist in Prevention of Marine Debris.





## Summary of Resource Needs

NOS provided \$700,000 for cooperative marine debris clean up and prevention efforts in FY01. The total amount provided by NOAA for marine debris removal in FY01 exceeded \$3 million. Funding will need to remain at similar levels to maintain the same level of effort.

### Strategy 1: Assist in Marine Debris Removal

#### **Description and Need for the Strategy**

Marine debris damages the natural resources and threatens critical habitat for the endangered Hawaiian monk seals and other marine life. From 1998-2000, an interagency effort removed 78 tons of debris from the reefs and beaches of the NWHI; however, hundreds of tons remain.

Ongoing efforts at the interagency level need to be increased. The NMFS-led collaborative effort proposes to remove 90% of derelict fishing gear by the end of FY03. To be the most efficient and effective, efforts need to be increased.

#### **Results of the Strategy**

Output: Projected removal of 90% of the marine debris in the NWHI by the end of FY03.

Outcome: A healthier coral reef ecosystem.

#### **Activities**

1. Boats will be secured to serve as platforms to remove the debris.
2. Participants from various agencies will systematically tour the NWHI to remove the debris. Those aboard NOAA vessels must be certified as NOAA working divers in order to participate in the removal effort.

#### **Location**

Removal will occur throughout the NWHI. Removal using FY01 funds focused on Kure Atoll, Midway Atoll, Pearl and Hermes Reef, Lisianski Island, and Neva Shoals.

#### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Marine Debris Coordinator (NMFS)
- NMFS partners
- USFWS partners
- State of Hawai'i partners
- USCG partners
- U.S. Navy
- Ocean Conservancy and other non-governmental partners





### **Timeline and Due Dates**

The Reserve joined the interagency effort in FY01 with the intent to continue as an ongoing partner through FY03.

### **Costs**

NOAA supplied \$1.5 million for cooperative marine debris clean up and prevention efforts in FY02.

### **Performance Measures**

- Completion of removal of a target amount of marine debris for each year of the project.



## Strategy 2: Support Marine Debris Web Site

### **Description and Need for the Strategy**

The International Marine Debris Conference in August, 2000, recommended the development of a marine debris website. There is a great deal of interest in efforts to remove marine debris from all of the Hawaiian and Pacific Islands.

A website will efficiently disseminate information about current research on fishing gear and debris variety, deposition rates, international policy and relevant oceanographic processes. In addition, it will continue to raise awareness and generate support by introducing ways for the public to get involved in removal and prevention.

### **Results of the Strategy**

Output: Website.

Outcome: Successful coordination of the marine debris removal effort and better public awareness.

### **Activities**

1. Identify who will develop and manage the web site.
2. Coordinate with political and natural scientists to collect data regularly.

### **Location**

The website will affect all areas of the Reserve.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Web support personnel (on-site and at NOS HQ)
- NMFS partners

### **Timeline and Due Dates**

This work is an ongoing process; however, the funding for the cooperative cleanup and prevention efforts have been secured for three years.

### **Costs**

NOAA supplied \$1.5 million for cooperative marine debris clean up and prevention efforts in FY02. These efforts will receive continued support from all agencies involved totalling \$9,000,000 through FY03.

### **Performance Measures**

- Completion of the website.





### Strategy 3: Assist in Marine Debris Prevention

#### **Description and Need for the Strategy**

Marine debris is considered one of the most serious threats facing natural resources within the NWHI. Although strides are being made to remove debris, the ultimate goal is to prevent the continuous influx of marine debris along the reefs and beaches of the NWHI. Sources of marine debris need to be identified, followed by efforts to stop further pollution.

#### **Results of the Strategy**

##### Outputs:

- Identification of sources and deposition rates of various types of marine debris.
- Marine debris tracking techniques.
- Improved oceanographic models.
- Stronger communication with domestic and international producers of marine debris.

Outcome: Reduced threats to natural resource conditions in the Reserve.

#### **Activities**

1. Support NMFS efforts to identify and track derelict fishing gear and their sources, using satellite remote sensing, surface drifters, and oceanographic models.
2. Support education programs directed at commercial fishing and maritime industries about the damage to coral reefs by marine debris.
3. Work with U.S. State Department to identify solutions to foreign debris sources.
4. Continue to catalog and inventory types of marine debris and deposition rates.
5. Work with the WPRFMC to learn the extent of the debris generated from boats under its permits and ways to stop such debris from occurring.

#### **Location**

This strategy will affect the entire Reserve and surrounding areas.

#### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Marine Debris Coordinator (NMFS)
- USFWS partners
- State of Hawai'i partners
- NMFS partners
- USCG partners
- U.S. State Department

#### **Timeline and Due Dates**

This work is an ongoing process; however, the funding for the cooperative cleanup and prevention efforts has been secured for three years.



**Costs**

NOAA supplied \$1.5 million for cooperative marine debris clean up and prevention efforts in FY02. These efforts will receive continued support from all agencies involved totalling \$9,000,000 through FY03.

**Performance Measures**

- Reduction in the amount of marine debris entering the Reserve using a baseline year of 1998.







## Action Plan: Enforcement

### Background/Context

The Executive Order directs the Secretary to provide for enforcement and surveillance for the Reserve, including the use of new technologies and coordination with the United States Coast Guard and other relevant agencies. In the past NMFS, in conjunction with NOS and the USCG, has been responsible for monitoring fishing vessel activity in the closed and protected species areas of this region. The current enforcement techniques utilized in the NWHI are based on a network of transponders that track regional fishing vessels. This network is supplemented by a coral reef education and outreach program.

It is quite likely that the single most important element in this Reserve Operating Plan that will cause vessels to adhere to future regulations is the implementation of an efficient, real-time monitoring and enforcement system with integrated depth readout. Without the design and rapid implementation of a system to monitor vessel traffic in the NWHI and to provide for thorough enforcement, efforts to conserve and protect the NWHI may fall far short of intended goals as mandated by the Executive Orders and other regulations. As such there is a need for immediate enforcement and monitoring protocols to be developed and implemented.

### Strategies:

- Strategy 1: Support the Development of a Vessel Monitoring System Expansion.
- Strategy 2: Continue Education and Outreach.
- Strategy 3: Provide Increase in Air and Sea Support.

### Summary of Resource Needs

The costs will mainly be in-house staff labor, travel, equipment, and contracts.



## Strategy 1: Support the Development of a Vessel Monitoring System Expansion.

### **Description and Need for the Strategy**

The Executive Order directs the Secretary to consider the need for the establishment of a vessel monitoring system (VMS) for vessels entering or transiting the Reserve, and to develop such a VMS, if warranted. A VMS is the use of established and emerging technology that allows for satellite-based tracking of vessels, including fishing boats. A VMS is currently used to monitor the Hawai'i-based longline fishery, reduce commercial and recreational fisher conflict, and enforce closures in the NWHI. Future developments of this system may include land-based radar and video systems, satellite video technology, increased traditional surveillance and automation of traditional surveillance, real-time multiple agency notification of violations through vessel monitoring systems, vessel monitoring systems with integrated depth display, buffer-zone alerts, passive sonar vessel detection deployment, and vessel removal insurance and vessel grounding bond requirements.

The hardware, software, and communications components of a VMS are commercially available. However, the VMS currently operates on a locational basis, not a depth basis. Until straight-line boundaries are developed, a depth-based VMS must be researched, since the RPA provisions are based on depth. This might be developed by linking existing VMS technology to depth finders on vessels. In addition, a significant effort will be made to publicize widely through news media and on website postings all violations of Reserve regulations, including identification of vessels, vessel owners and operators, and fines and/or incarceration. The NWHI are a remote chain; the VMS is the most economical and efficient method of enforcement for the Reserve.

### **Results of the Strategy**

Output: Real-time, depth-capable, increased capacity VMS.

Outcome: Improved knowledge about the NWHI and the uses occurring there.

### **Activities**

The Reserve has provided funding to NMFS's Southwest Enforcement Division in order to:

1. Support current VMS efforts, if warranted.
2. Purchase and install additional transducers for the VMS, if warranted.
3. Provide support for research and development start up costs related to improved surveillance technology in an expanded VMS in the NWHI.

### **Location**

This strategy will take place throughout the Reserve and at areas on the main Hawaiian Islands where vessels land commercial catch or other resources from the NWHI.





## Staff and Partners

- Reserve Coordinator
- Assistant Reserve Coordinator
- Southwest Enforcement Division, NMFS
- Other NMFS partners
- USCG partners
- USFWS partners
- State of Hawai'i partners

## Timeline and Due Dates

Research and development of a depth-capable VMS has already begun and will continue into early FY02.

## Costs

The Reserve has provided funding of \$50,000 to NMFS's Southwest Enforcement Division. Most of the other development costs associated with this strategy involve in-house labor and staff. Start-up costs for software, monitoring staff, and equipment may be incurred.

## Performance Measures

- Development and implementation of a depth-capable VMS for the Reserve.





## Strategy 2: Continue Enforcement-Focused Education and Outreach

### **Description and Need for the Strategy**

Ongoing, enforcement-focused education and outreach seeks to inform user groups and the general public about the NWHI and human impacts on the NWHI.

### **Result of the Strategy**

Output: Oral, written, and video presentation material about Reserve resources.

Outcome: A more informed public and expanded resource protection.

### **Activities**

Products focusing on public education on the Reserve's resources and enforcement will be developed. Such products will include items such as videotapes or films of various lengths, Public Service Announcements, and printed materials for wide distribution.

### **Location**

This strategy will take place in the communities closest to the Reserve and the general public.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- US Coral Reef Task Force
- NMFS partners
- USCG partners
- State of Hawai'i Department of Education
- State of Hawai'i Office of Hawaiian Affairs
- The Bishop Museum
- Non-governmental organizations

### **Timelines and Due Dates**

This is an ongoing strategy.

### **Costs**

Costs will mainly be in-house staff labor, but extra costs may be incurred for travel and contract support.

### **Performance Measures**

- Increasing numbers of individuals reached by the education and outreach programs.



### Strategy 3: Provide Increase in Air and Sea Support

#### **Description and Need for this Strategy**

The USCG provides traditional surface and aerial surveillance and enforcement to the Reserve. These efforts complement the USFWS enforcement activities. With new restrictions to be placed on activities with the implementation of the Reserve, enhanced enforcement efforts will be needed.

#### **Results of the Strategy**

Output: Increased enforcement coverage to the Reserve.

Outcome: Better protection of Reserve resources.

#### **Activities**

1. Provide partial funding for USCG support services (fuel, lodging, etc.).
2. Provide partial funding for a new C-130 airframe, crew, and maintenance.

#### **Location**

This strategy will take place throughout the Reserve and surrounding areas.

#### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Education Coordinator
- NMFS partners
- USCG partners

#### **Timeline and Due Date**

Ongoing

#### **Costs**

The costs for this strategy could vary depending on NOS involvement. Main costs will be in-house staff labor; additional costs for staffing and equipment may be incurred.

#### **Performance Measures**

- Increasing air and sea support provided to enforcement operations.





## Action Plan: Sanctuary Designation

### Background/Context

The Act and the Executive Order directs the Secretary to begin the process to designate the Reserve as a National Marine Sanctuary. Consequently, the Reserve was declared as an Active Candidate for Sanctuary designation on January 17, 2001 (5509 FR 66). The NMSP will follow the designation process in the NMSA, and as further developed by the NMSP (see Figure 2 for a flowchart providing an overview of the designation process). Adjustments to the process and scheduling will be made as necessary as the designation process continues.

### Strategies

- Strategy 1: Develop a Communications Plan to Support the Designation Process.
- Strategy 2: Complete a Project Plan for the Designation, Including Major Milestone Dates.
- Strategy 3: Utilize Reserve "Vision" Process as Basis for Sanctuary Designation.
- Strategy 4: Prepare for Scoping Meetings.
- Strategy 5: Conduct the Scoping Process.
- Strategy 6: Let Contracts for Special Assessments.
- Strategy 7: Examine the Reserve Operations Plan.
- Strategy 8: Conduct the Internal Evaluation of Issues.
- Strategy 9: Characterize and Prioritize Issues, and Develop Recommendations.
- Strategy 10: Develop the Draft Management Plan and Draft Environmental Impact Statement
- Strategy 11: Conduct a Public Review of the Draft Management Plan and Draft Environmental Impact Statement.
- Strategy 12: Develop the Final Management Plan and Final Environmental Impact Statement.

### Summary of Resource Needs

The main costs of a designation process involve in-house staff labor and additional costs for travel, contract support, and printing. Sanctuary designations can cost between \$500,000 and \$1 million, or more for complex, long-term processes.



## Strategy 1: Develop a Communications Plan to Support the Designation Process

### **Description and Need for the Strategy**

Strong, clear communication, both with partners and constituents, is vital for a successful Sanctuary designation. Constituents and the public must be provided with adequate information in a timely manner in order to comfortably participate in the designation process and to provide the best input to the NMSP. Partners, including the State of Hawai'i, USFWS, and WPRFMC, must also be kept abreast of each development in the designation process in order to allow their effective and efficient participation. To these ends, a communication plan addressing the various audiences (constituents, partners, the general public and the media) through appropriate means (e.g., publications, website, etc.) will be developed using a general template already in use by the NMSP.

### **Results of the Strategy**

Outputs: A general communications plan with subsidiary projects:

- Question-and-answers brochure that will also serve as a document to help generate comments during the scoping meeting.
- Designation-specific website (or section on the existing website).

Outcome: A better informed public, media, constituency, and partners.

### **Activities**

1. Adapt the existing NMSP communication plan template to the needs of the Reserve, identifying target audiences, appropriate messages, and the best ways to deliver the messages to each audience.
2. Complete the questions-and-answers brochure for use as a general information publication and also to help prepare the public for the scoping meetings. This brochure will build on the existing question-and-answer section of the current website ([hawaiiireef.noaa.gov](http://hawaiiireef.noaa.gov)), as well as a management plan review one-pager already developed by the NMSP, and will add new sections as appropriate and necessary for the designation process.
3. Update the website at [hawaiiireef.noaa.gov](http://hawaiiireef.noaa.gov) to reflect both updates to the Reserve and the ongoing designation process.
4. Develop other products (e.g., press releases) as called for by the communication plan.

### **Location**

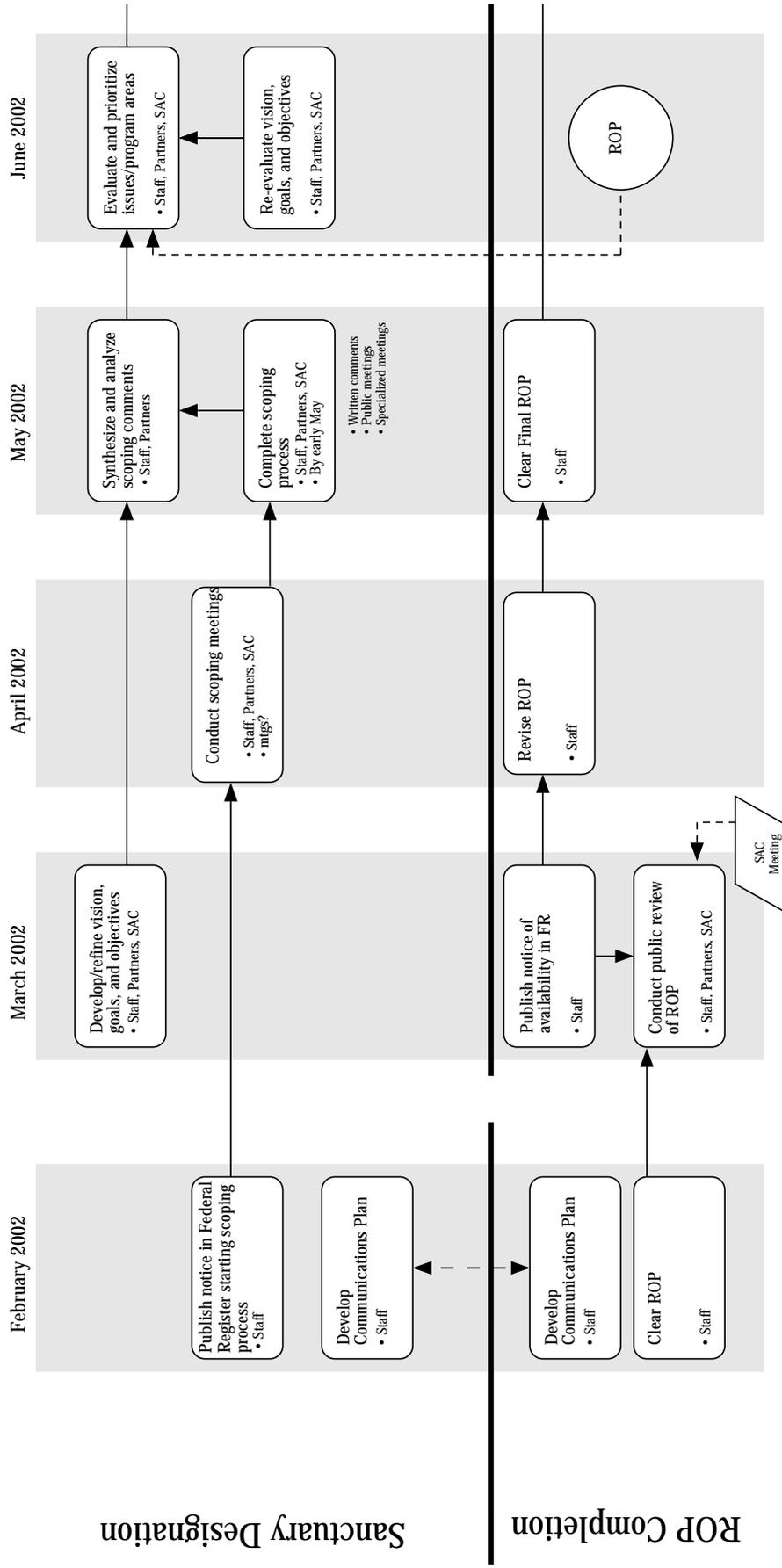
The communications plan will affect the entire Reserve.

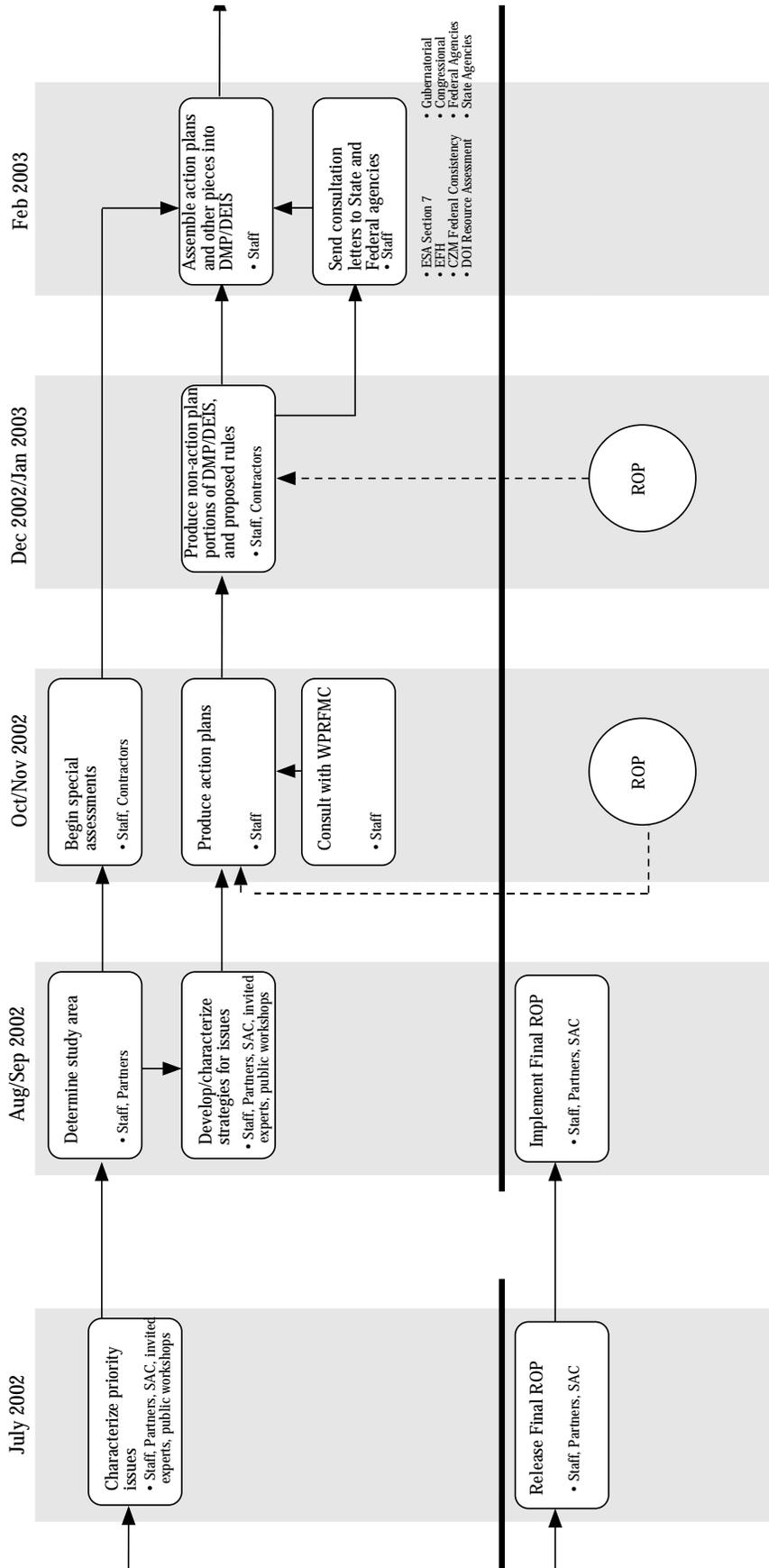
### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Designation Project Manager



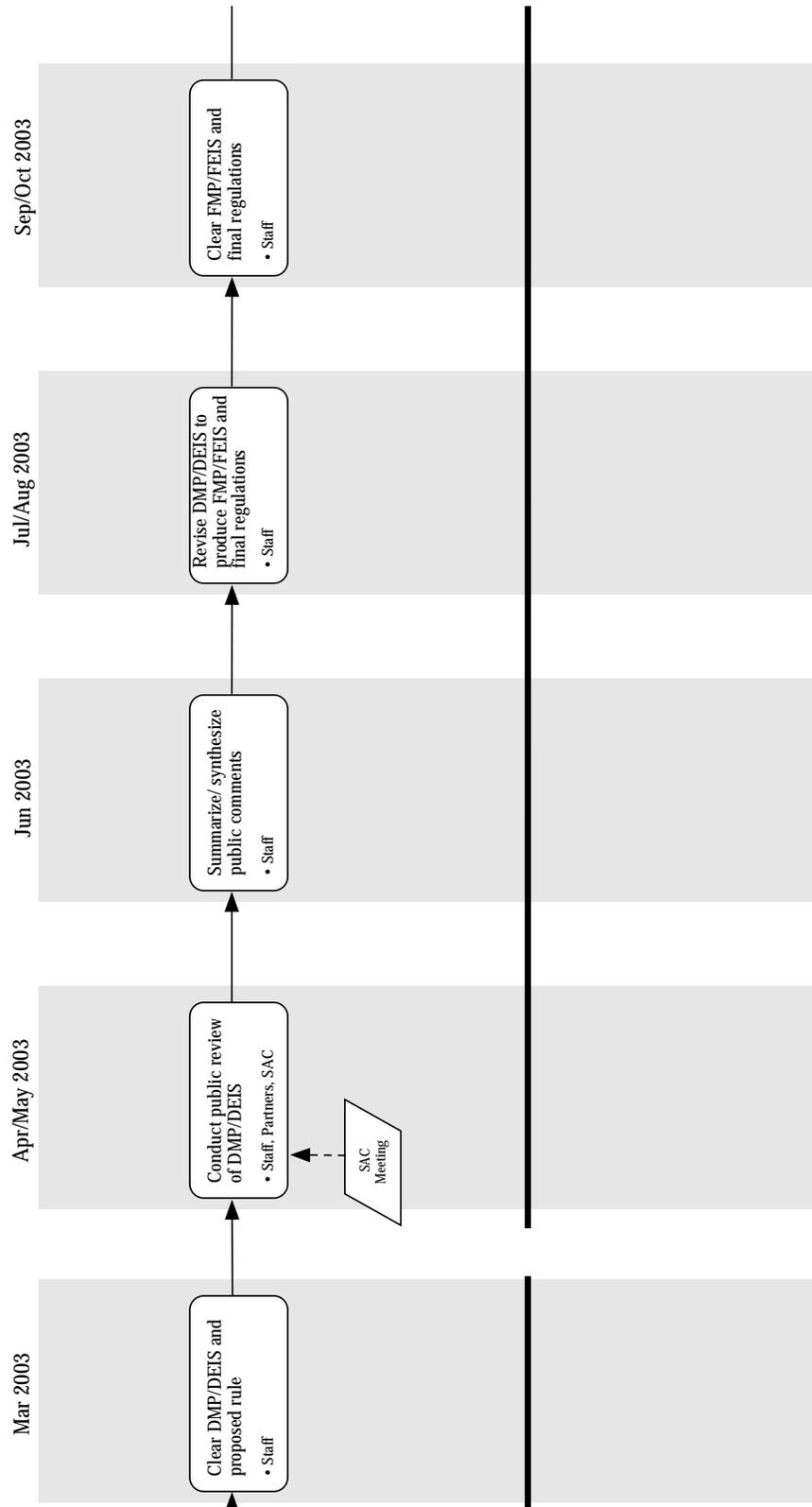
Figure 2: Proposed NWHI National Marine Sanctuary Designation Process

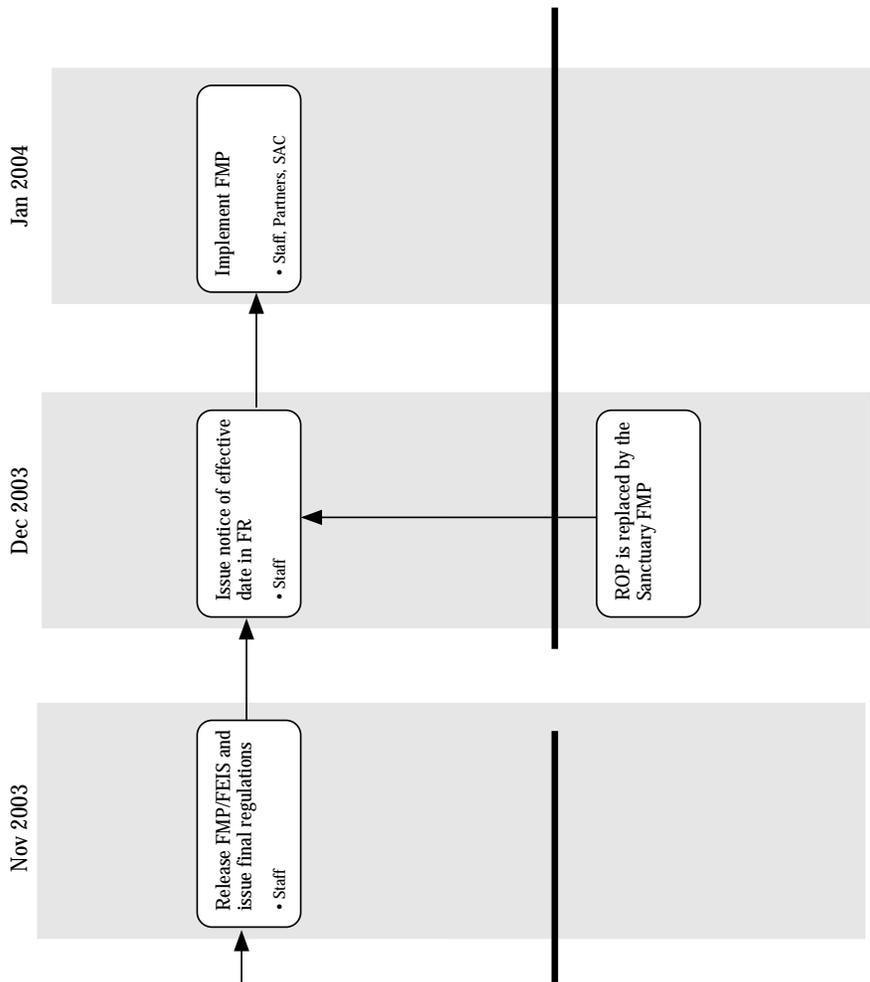






NATIONAL MARINE  
SANCTUARIES





NATIONAL MARINE  
SANCTUARIES





- Project Manager (NMSP HQ)
- Communications Branch (NMSP HQ and in California)
- State of Hawai'i partners
- USFWS partners
- WRPFCM partners
- Non-governmental organizations

### **Timeline and Due Dates**

The communications plan should be developed in early FY02 and will continue throughout the 24-36 months of the designation process.

### **Costs**

Labor will mainly be provided by in-house staff. Some assistance for text layout and editing, graphic design, and web support may be necessary.

### **Performance Measures**

- Completion of communications plan.
- Completion of questions-and-answers document.
- Creation or updating of website to reflect ongoing designation process.

### **Relation to Other ROP Strategies and Other Projects**

The communications plan will serve as an essential underpinning for the entire designation process and will reflect changes as other strategies proceed and evolve.



## Strategy 2: Complete a Project Plan for the Designation, Including Major Milestone Dates.

### Description and Need for the Strategy

The designation process, while not particularly complicated, is nevertheless complex in terms of the number and scope of interdependent projects and the numbers of people involved. To help maintain coordination and provide for some uniformity among these linked strategies, a general project plan should be developed, that includes major milestones/due dates, personnel assignments, and budgets, where possible.

### Results of the Strategy

Output: A detailed project plan

Outcome: An efficient, maximized designation process

### Activities

The flowchart shown in Figure 2 will be used to help develop a detailed project plan.

### Location

The project plan will affect the entire Reserve.

### Staff and Partners

- Reserve Coordinator
- Assistant Reserve Coordinator
- Designation Project Manager
- Project Manager (NMSP HQ)
- Team Lead, Management Plan Team (NMSP HQ)
- State of Hawai'i partners
- USFWS partners
- Non-governmental organizations

### Timeline and Due Dates

The project plan should be completed in early FY02. The project plan will require modification as the designation process proceeds.

### Costs

The project plan will be completed using in-house staff.

### Performance Measures

- Completion of the project plan.





## Relation to Other ROP Strategies and Other Projects

The project plan will serve as an essential underpinning for the entire designation process and will reflect changes as the process proceeds.



### Strategy 3: Utilize Reserve “Vision” Process as Basis for Sanctuary Designation.

#### **Description and Need for the Strategy**

Given that the Reserve is located far from any population centers, and currently supports a small bottomfish fishery (estimated 11 vessels) and a small number of recreational fishers (estimated less than 30 per year), its characteristics are vastly different than any existing Sanctuary. For example, the Florida Keys National Marine Sanctuary hosts 26,000 recreational fishing vessels based in Monroe County alone and contends with over 600 vessel groundings per year. The Reserve is therefore unique, by virtue of location, difficulty of access, and limited existing uses.

In recognition of these unique characteristics, the NMSP will conduct a “vision” process to develop a short working document that defines a vision, goals, and objectives for the Reserve.

#### **Results of the Strategy**

Output: A draft summary document that will be updated as the scoping process proceeds.

Outcome: A concrete idea of where the Reserve should be headed as it becomes a Sanctuary.

#### **Activities**

1. Review the principles and purpose of the Reserve as provided by the Executive Order.
2. Assess the performance of other Sanctuaries in light of the principal goal of the Executive Order (preservation and conservation of ocean resources in their natural state); evaluate the goals and objectives of other Sanctuaries for relevance to the unique characteristics of the NWHI.
3. Synthesize this information, together with input from the Reserve/Sanctuary Advisory Council, into a short, working vision document.

#### **Location**

This “vision” process will be for the entire Reserve and surrounding areas.

#### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Designation Project Manager
- Project Manager (NMSP HQ)
- Team Lead, Management Plan Team (NMSP HQ)
- State of Hawai'i partners
- USFWS partners
- Reserve/Sanctuary Advisory Council
- Non-governmental organizations





### **Timeline and Due Dates**

Internal visioning should begin prior to or during scoping, and be completed before issue characterization begins.

### **Costs**

Most of the work will be completed by in-house staff. Travel costs for workshops may be necessary.

### **Performance Measures**

- Completion of draft visioning document.

### **Relation to Other Strategies**

The draft visioning document will be used later in the designation process to help shape the vision, goals, and objectives of the Sanctuary management plan.



## Strategy 4: Prepare for Scoping Meetings.

### **Description and Need for the Strategy**

Conducting the scoping process to obtain public input is crucial to the preparation of a Sanctuary management plan. Tending early and effectively to the logistics surrounding the scoping process not only ensures that the scoping process proceeds smoothly but optimizes the level and quality of public input into the preparation of a Sanctuary management plan. The scoping process will include opportunities to provide written comments via the mail and internet, and oral comments at a series of scoping meetings to be held in Hawai'i and Washington, D.C.

### **Results of the Project**

#### Outputs:

- Written summary of scoping meeting times and locations; access information (including compliance with the Americans with Disabilities Act (ADA)); on-staff facilitators and note-takers for each meeting as necessary; checklist of materials to take to each meeting; the expected number of participants at each meeting; and identification of the method to be used to capture public comments (worksheets, flip charts, tape recorder, court reporter, etc.)
- Presentation material for each meeting (e.g., speech, slide show, etc.)
- Comment form for the public to provide written comments.
- Scoping document (questions-and-answers brochure) released to the public.
- Website capable of receiving electronic comments.
- *Federal Register* and local media notices of the scoping meetings and scoping process deadline for comments.

Outcome: An efficient scoping process that maximizes public involvement.

### **Activities**

The designation project manager will be primarily responsible for making these arrangements.

### **Location**

Scoping meetings will be held at various places in the State of Hawai'i and Washington, D.C. to provide a broad opportunity for public involvement.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Designation Project Manager
- Project Manager (NMSP HQ)
- Team Lead, Management Plan Team (NMSP HQ)
- State of Hawai'i partners
- USFWS partners
- Reserve/Sanctuary Advisory Council





## Timeline and Due Dates

Preparation for the scoping process will be completed before scoping meetings are held, which the NMSP estimates will be Spring 2002. The *Federal Register* and local media notices will be issued fifteen days prior to the first scoping meeting. The comment period for written comments would be at least 45 and usually up to 60 days.

## Costs

The costs for this strategy will include in-house staff labor and costs for travel, meeting venues and advertising, and web page development.

## Performance Measures

- Scoping meetings are scheduled and appropriately sited.
- The scoping document has been released to the public.
- The *Federal Register* and local media notices have been released.

## Relation to Other ROP Strategies and Other Projects

This strategy provides the foundation to the scoping process that will follow in FY02.



## Strategy 5: Conduct the Scoping Process.

### **Description and Need for the Strategy**

Conducting the scoping process to obtain public input is crucial to the preparation of a Sanctuary management plan. The scoping process will include opportunities to provide written comments, including via the Internet, and oral comments at a series of scoping meetings to be held in Hawai'i and Washington, D.C. The public comment period for written comments will be open for at least 45 and usually up to 60 days.

### **Results of the Strategy**

#### Outputs:

- Collection of comments as received (i.e., written comment letters, electronic comments, comment worksheets and/or flipchart pages from public meetings).
- Synthesis and analysis of comments received.
- Preliminary list of all issues identified during scoping.

Outcome: Ability to identify and consider issues from the public during the process to prepare the Draft Management Plan

### **Activities**

1. Conduct all scoping meetings using a facilitated, round-table format.
2. Collect all written comments (including electronic and results from meetings) and prepare a synthesis and analysis of all comments received.

### **Location**

Scoping meetings will probably be held on all major Hawaiian islands and in Washington, D.C.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Sanctuary Designation Project Manager
- Project Manager (NMSP HQ)
- Team Lead, Management Plan Team (NMSP HQ)
- State of Hawai'i partners
- USFWS partners
- Reserve/Sanctuary Advisory Council
- Other NMSP HQ and Reserve staff as necessary

### **Timeline and Due Dates**

The scoping process will probably be initiated in early to mid FY02 and continue for approximately two months.





## Costs

Labor will be provided by in-house staff. Additional travel costs may be necessary.

## Performance Measures

- Conduct of scoping meetings.
- Completion of synthesis and analysis of all comments received.

## Relation to Other ROP Strategies and Other Projects

The results of the scoping process provide a crucial part of the foundation for preparing the Draft Management Plan.



## Strategy 6: Let Contracts for Special Assessments.

### **Description and Need for the Strategy**

The preparation of a Sanctuary Management Plan and its accompanying environmental impact statement (as required by the NMSA) require certain sections to be included. Among these sections are a description of the affected environment and a description of the socio-economic conditions (as well as a later analysis of the impacts of proposed regulations and programs on those socioeconomic conditions).

The most efficient use of time and resources are that these two, and perhaps other, assessments be prepared by technical experts/consultants. In order that such products be delivered in time to start preparing the draft Sanctuary Management Plan and its environmental impact statement, procurement procedures to award such contracts must be started early in the process.

### **Results of the Strategy**

Outputs: Awarded contracts.

Outcome: Technically accurate and timely sections to be used to help prepare a high quality draft Sanctuary Management Plan and environmental impact statement.

### **Activities**

1. NMSP and Reserve staff will prepare the proper documentation per normal governmental procurement requests.
2. The contracts will be awarded to the appropriate parties for completion.

### **Location**

These contracts will cover the entire Reserve and surrounding areas.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Designation Project Manager
- Project Manager (NMSP HQ)
- Reserve administrative staff, as appropriate
- Other NMSP HQ staff, as appropriate
- Reserve/Sanctuary Advisory Council as reviewers, if appropriate

### **Timeline and Due Dates**

The contracts should be awarded soon after the scoping process ends.





## Costs

The costs of awarding these contracts will mainly be in-house staff time; additional costs to be determined as the designation process proceeds will cover the contracts themselves.

## Performance Measures

- Contracts awarded.

## Relation to Other ROP Strategies and Other Projects

The products resulting from the awarded contracts are essential to the completion of the draft Sanctuary Management Plan and its draft environmental impact statement.



## Strategy 7: Examine the Reserve Operations Plan.

### **Description and Need for the Strategy**

The Reserve Operations Plan will be in effect during the designation process and will help serve as one of the foundations to develop a Sanctuary Management Plan. Therefore, the NMSP and Council should review the Reserve Operations Plan as a Sanctuary Management Plan is prepared.

### **Results of the Strategy**

Output: Ideas on improving Reserve Operations Plan elements that are to be incorporated into a Sanctuary Management Plan.

Outcome: Improved action plans in a Sanctuary Management Plan.

### **Activities**

1. Reserve staff, staff at NMSP HQ, and the Council will discuss what has and has not worked in the Reserve Operations Plan.
2. Inventory changes in a short written report for use in drafting a Sanctuary Management Plan.

### **Location**

Changes will potentially affect the entire Reserve.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Designation Project Manager
- Project Manager (NMSP HQ)
- Team Lead, Management Plan Team (NMSP HQ)
- State of Hawai'i partners
- USFWS partners
- Reserve/Sanctuary Advisory Council
- Non-governmental organizations

### **Timeline and Due Dates**

This effort should begin after the designation scoping meetings have been completed and continue on periodic basis as a Sanctuary Management Plan is prepared.

### **Costs**

Costs of this effort will be mainly in-house staff labor.





### Performance Measures

- Completion and periodic update of a short written synthesis.

### Relation to Other ROP Strategies and Other Projects

The written synthesis will affect other strategies concerned with preparing a Sanctuary Management Plan.



## Strategy 8: Conduct the Internal Evaluation of Issues

### **Description and Need for the Strategy**

This step takes the results of the scoping process and several earlier strategies and combines them to produce a list of issues and concerns that may be addressed by the Draft Management Plan. Since the rest of the designation process is issue-driven, the evaluation is important in determining which issues can and should be dealt with in the Draft Management Plan.

### **Results of the Strategy**

Output: A revised list of issues.

Outcome: A more focused effort to further characterize and prioritize the issues to be addressed by the Draft Management Plan.

### **Activities**

This intent of this phase is to refine the preliminary list of issues developed just after the scoping process is complete into a smaller list of those issues that the Draft Management Plan will address. This will be done with the Reserve/Sanctuary Advisory Council and the Reserve's management partners, and can be done by a variety of methods, including scoring worksheets, internal facilitated retreats, and workshops. Criteria may include such considerations as community support, areal extent of threat, intensity of threat, urgency, social practicality, the Sanctuary's ability to address threat, and relationship to the stated goals and objectives of the proposed Sanctuary.

### **Location**

The range of issues will cover the entire Reserve and surrounding areas.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Designation Project Manager
- Project Manager (NMSP HQ)
- Team Lead, Management Plan Team (NMSP HQ)
- State of Hawai'i partners
- USFWS partners
- Reserve/Sanctuary Advisory Council
- Non-governmental organizations

### **Timeline and Due Dates**

The internal evaluation of issues will take place after scoping is complete.





### **Costs**

Labor will primarily be provided by in-house staff. Some travel may be necessary.

### **Performance Measures**

- Completion of a refined list of issues.



## Strategy 9: Characterize and Prioritize Issues, and Develop Recommendations.

### **Description and Need for the Strategy**

Once the list of issues has been refined, the next step is to conduct a more in-depth characterization of the issues. These issues will then be prioritized and addressed in the Draft Management Plan. The characterizations include recommendations on how to address each issue. This is the final step before the preparation of the Draft Management Plan begins.

### **Results of the Strategy**

#### Outputs:

- A detailed characterization of each issue (per templates that have already been developed)
- A prioritized list of issues to be addressed and a decision on if and how to address each issue in the Draft Management Plan.
- A prioritized list of actions to address each issue.

Outcome: Foundation for a focussed and practical Draft Management Plan.

### **Activities**

Issues can be characterized in a number of different ways; successful methods at other sites have included the staff preparation of white papers; facilitated workshops; and/or contracted descriptions by consultants. The characterizations also contain a list of strategies that might be taken to address each issue. These actions must also be detailed (again, using existing templates) and prioritized.

### **Location**

The range of issues and actions will cover the entire Reserve and surrounding areas.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Designation Project Manager
- Project Manager (NMSP HQ)
- Team Lead, Management Plan Team (NMSP HQ)
- State of Hawai'i partners
- USFWS partners
- Reserve/Sanctuary Advisory Council
- Non-governmental organizations

### **Timeline and Due Dates**

Dependent upon completion dates of earlier steps.





## Costs

Labor will mainly be provided by in-house staff. Some travel and contracted consultants may be necessary.

## Performance Measures

- Characterization of each issue completed.
- Issues prioritized for addressing.
- Prioritized actions prepared for each issue.

## Relation to Other ROP Strategies and Other Projects

The prioritized list of issues, and the prioritized list of actions for each issue, form the basis for preparing action plans.



## Strategy 10: Develop the Draft Management Plan and Draft Environmental Impact Statement

### **Description and Need for the Strategy**

The Draft Management Plan and Draft Environmental Impact Statement will present to the public the approaches and projects that the NMSP proposes to take in managing a North-western Hawaiian Islands National Marine Sanctuary, as well as alternatives to the proposed action.

### **Results of the Strategy**

Outputs: A Draft Management Plan and Environmental Impact Statement

Outcome: A step toward a strong, practical, and coordinated approach to protecting and managing the resources of the Northwestern Hawaiian Islands

### **Activities**

The key steps in completing the Draft Management Plan and Draft Environmental Impact Statement include:

1. Preparing the action plans (to address specific issues and/or functional areas of Sanctuary operation);
2. Preparing supporting sections of the Draft Management Plan (including those prepared by consultants in earlier steps in this action plan);
3. Identifying alternatives (as required by the National Environmental Policy Act (NEPA)) and describing their environmental and socioeconomic impacts;
4. Consulting with local, tribal, state, and federal agencies and with Congress;
5. Preparing draft regulations to be released simultaneously with the Draft Management Plan;
6. Conducting an internal review of the Draft Management Plan (including any briefings for management); and
7. Releasing the Draft Management Plan and Draft Environmental Impact Statement for public review.

### **Location**

The range of the Draft Management Plan and Draft Environmental Impact Statement will cover the entire Reserve and surrounding areas (i.e., the “study area” as identified by the Draft Management Plan).

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Designation Project Manager
- Project Manager (NMSP HQ)
- Team Lead, Management Plan Team (NMSP HQ)
- State of Hawai'i partners
- USFWS partners
- Reserve/Sanctuary Advisory Council





### **Timeline and Due Dates**

Dependent upon completion dates of earlier steps.

### **Costs**

Labor will mainly be provided by in-house staff. Some travel and contracted writers/editors/ graphic artists may be necessary.

### **Performance Measures**

- Draft Management Plan and Environmental Impact Statement completed and released to the public.

### **Relation to Other ROP Strategies and Other Projects**

The Draft Management Plan and Environmental Impact Statement is the culmination of the earlier efforts described in strategies 1- 9 this action plan.



## Strategy 11: Conduct a Public Review of the Draft Management Plan and Draft Environmental Impact Statement.

### **Description and Need for the Strategy**

This step represents the second major opportunity for public involvement in the designation process (the scoping process being the first). The Draft Management Plan and Draft Environmental Impact Statement is released to the public and another set of public hearings (and an opportunity to submit written comments) is provided. Here, the NMSP provides their proposed approach to the public, and accepts their thoughts on how to improve or alter the proposed actions.

### **Results of the Strategy**

Output: A collection of comments (written and oral) on the Draft Management Plan and Draft Environmental Impact Statement.

Outcome: An improved Management Plan and Environmental Impact Statement.

### **Activities**

This strategy mirrors many of the same steps that occur during the scoping process. Public meetings are held, allowing interested individuals to submit oral comments on the Draft Management Plan and Environmental Impact Statement; an opportunity for written comments, both electronically and through the mail, is also provided.

### **Location**

The range of the Draft Management Plan and Environmental Impact Statement will cover the entire Reserve and surrounding areas.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Designation Project Manager
- Project Manager (NMSP HQ)
- Team Lead, Management Plan Team (NMSP HQ)
- State of Hawai'i partners
- USFWS partners
- Reserve/Sanctuary Advisory Council

### **Timeline and Due Dates**

Dependent upon completion dates of earlier steps





## Costs

Labor will mainly be provided by in-house staff. Travel costs may be necessary. Meeting venues and advertising costs may be incurred.

## Performance Measures

- Completion of summarization and analysis of comments.

## Relation to Other ROP Strategies and Other Projects

The public is providing comments on the Draft Management Plan and Environmental Impact Statement produced in earlier efforts described in this action plan.



## Strategy 12: Develop the Final Management Plan and Environmental Impact Statement.

### **Description and Need for the Strategy**

This final step involves producing the Final Management Plan and Final Environmental Impact Statement. This is the culmination of all the prior steps described in this action plan and provides the public with the approach that the NMSP will take in managing a Northwestern Hawaiian Islands National Marine Sanctuary.

### **Results of the Strategy**

Output: Final Management Plan and Final Environmental Impact Statement.

Outcome: A strong, practical, and coordinated plan for protecting and managing the resources of the Northwestern Hawaiian Islands.

### **Activities**

All comments received during the public review of the Draft Management Plan are collected, summarized, and analyzed. Next, decisions are made on what changes, if any, should be made in light of the comments received. Responses to the comments are also prepared. Appropriate changes are then made to the document and a Final Management Plan and Final Environmental Impact Statement is produced, reviewed, and released to the public. After a 30-day "cooling off" period, if a Sanctuary is designated and final regulations are issued, a 45-day Congressional review period begins, after which the Final Management Plan and regulations become effective. If the Sanctuary includes State waters, the Governor of Hawai'i may object to any term of the final regulations and management plan during the 45-day review. Any term objected to will not become effective in the State water portion of the Sanctuary.

### **Location**

The range of the Final Management Plan and Final Environmental Impact Statement will cover the boundaries of the designated Sanctuary.

### **Staff and Partners**

- Reserve Coordinator
- Assistant Reserve Coordinator
- Designation Project Manager
- Project Manager (NMSP HQ)
- Team Lead, Management Plan Team (NMSP HQ)
- State of Hawai'i partners
- USFWS partners
- Reserve/Sanctuary Advisory Council

### **Timeline and Due Dates**

Dependent upon completion dates of earlier steps.





## Costs

Labor will mainly be provided by in-house staff. Some travel and contracted writers/editors/graphic artists costs may be necessary.

## Performance Measures

- Final Management Plan and Environmental Impact Statement completed and released to the public.

## Relation to Other Strategies

The release of the Final Management Plan and Environmental Impact Statement is the endpoint of the process.







## Appendices

Appendix 1: Executive Order

Appendix 2: Environmental Assessment

Appendix 3: Bibliography

Appendix 4: Acronyms and Abbreviations

**Appendix 1: Executive Order 13178 As Modified by Executive Order 13196**

## Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve

By the authority vested in me as President by the Constitution and the laws of the United States of America, including the National Marine Sanctuaries Act, (16 U.S.C. 1431 et seq.), and the National Marine Sanctuaries Amendments Act of 2000, Public Law 106-513, and in furtherance of the purposes of the Magnuson- Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.), Marine Protection, Research, and Sanctuaries Act (33 U.S.C. 1401 et seq.), Coastal Zone Management Act (16 U.S.C. 1451 et seq.), Endangered Species Act (16 U.S.C. 1531 et seq.), Marine Mammal Protection Act (16 U.S.C. 1362 et seq.), Clean Water Act (33 U.S.C. 1251 et seq.), National Historic Preservation Act (16 U.S.C. 470 et seq.), National Wildlife Refuge System Administration Act (16 U.S.C. 668dd-ee), and other pertinent statutes, it is ordered as follows:

Section 1. Preamble. The world's coral reefs--the rain forests of the sea--are in serious decline. These important and sensitive areas of biodiversity warrant special protection. While United States waters contain approximately 3 percent of the world's coral reefs, approximately 70 percent of U.S. coral reefs are in the Northwestern Hawaiian Islands. The 3.5 million acres of coral reefs around the remote, mostly uninhabited Northwestern Hawaiian Islands are spectacular and almost undisturbed by humans. The approximately 1,200 mile stretch of coral islands, seamounts, banks, and shoals are unquestionably some of the healthiest and most extensive coral reefs in the United States. In their own right, the spectacular coral reefs and lands provide an amazing geological record of volcanic and erosive powers that have shaped this area. This vast area supports a dynamic reef ecosystem that supports more than 7,000 marine species, of which approximately half are unique to the Hawaiian Island chain. This incredibly diverse ecosystem is home to many species of coral, fish, birds, marine mammals, and other flora and fauna including the endangered Hawaiian monk seal, the threatened green sea turtle, and the endangered leatherback and hawksbill sea turtles. In addition, this area has great cultural significance to Native Hawaiians as well as linkages to early Polynesian culture--making it additionally worthy of protection and understanding. This is truly a unique and special place, a coral reef ecosystem like no place on earth, and a source of pride, inspiration, and satisfaction for all Americans, especially the people of Hawai'i. It is fully worthy of our best efforts to preserve a legacy of America's natural wonders for future generations. Due to the special significance of this area, I have determined that it is in the best interest of our Nation, and of future generations, to provide strong and lasting protection for the coral reef ecosystem of the Northwestern Hawaiian Islands.

On May 26, 2000, I directed the Secretaries of Commerce and the Interior, working cooperatively with the State of Hawai'i and consulting with the Western Pacific Fishery Management Council, to develop recommendations for a new, coordinated management regime to increase protection of the coral reef ecosystem of the Northwestern Hawaiian Islands and provide for sustainable use of the area. Upon consideration of their recommendations and comments received during the public visioning process on this initiative, and based on the statutory authorities set forth above, I am issuing this Executive Order.

Section 2. Purpose. The purpose of this Executive Order is to ensure the comprehensive, strong, and lasting protection of the coral reef ecosystem and related marine resources and





species (resources) of the Northwestern Hawaiian Islands.

Section 3. Establishment of Coral Reef Ecosystem Reserve. There is hereby established in the Northwestern Hawaiian Islands a coral reef ecosystem reserve to be known as the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve (Reserve). The Reserve shall include submerged lands and waters of the Northwestern Hawaiian Islands, extending approximately 1,200 nautical miles (nmi) long and 100 nmi wide. The Reserve shall be adjacent to and seaward of the seaward boundaries of the State of Hawai'i and the Midway Atoll National Wildlife Refuge, and shall overlay the Hawaiian Islands National Wildlife Refuge to the extent that it extends beyond the seaward boundaries of the State of Hawai'i. The boundaries of the Reserve are described in section 6 of this order.

Section 4. Management Principles. The Secretary of Commerce, or his designee, (hereafter "Secretary") shall, subject to section 10(b) of this order, manage the Reserve in accordance with the following principles:

(a) The principal purpose of the Reserve is the long-term conservation and protection of the coral reef ecosystem and related marine resources and species of the Northwestern Hawaiian Islands in their natural character;

(b) The Reserve shall be managed using available science and applying a precautionary approach with resource protection favored when there is a lack of information regarding any given activity, to the extent not contrary to law;

(c) Culturally significant, noncommercial subsistence, cultural, and religious uses by Native Hawaiians should be allowed within the Reserve, consistent with applicable law and the long-term conservation and protection of Reserve resources;

(d) The Reserve shall be managed using, when appropriate, geographical zoning and innovative management techniques to ensure that the Reserve resources are protected from degradation or harm;

(e) To the extent consistent with the primary purpose of the Reserve, the Reserve shall be managed to support, promote, and coordinate appropriate scientific research and assessment, and long-term monitoring of Reserve resources, and the impacts or threats thereto from human and other activities, to help better understand, protect, and conserve these resources and species for future generations;

(f) To the extent consistent with the primary purpose of the Reserve, the Reserve shall be managed to enhance public awareness, understanding, and appreciation of Reserve resources, and the impacts or threats thereto from human and other activities;

(g) The Reserve shall be managed to further restoration and remediation of degraded or injured Reserve resources; and

(h) The Reserve shall be managed to facilitate coordinated management among Federal and State agencies and other entities, as appropriate, to provide comprehensive (looking beyond jurisdictional boundaries) conservation of the coral reef ecosystem and related marine



resources and species throughout the Northwestern Hawaiian Islands, consistent with applicable authorities and the Management Principles of this section.

### Section 5. Implementation.

(a) Management of the Reserve. The Secretary shall manage the Reserve under the National Marine Sanctuaries Act and in accordance with this order.

(b) Reserve Operations Plan. The Secretary, in consultation with the Secretary of the Interior and the Governor of Hawai'i, shall develop an operations plan to govern the management of the Reserve. In developing the Reserve Operations Plan the Secretary shall consider the advice and recommendations of the Reserve Council established pursuant to paragraph (c) of this section. The Reserve Operations Plan shall be directed at priority issues and actions that, at a minimum, provide for:

(1) Coordinated management among the Reserve, Hawaiian Islands National Wildlife Refuge, Midway Atoll National Wildlife Refuge, and the State of Hawai'i, consistent with relevant authorities;

(2) Coordination among Federal agencies and the Director of the National Science Foundation to make vessels and other resources available for conservation and research activities for the Reserve;

(3) The cleanup and prevention of marine debris in the Reserve;

(4) The restoration or remediation of any degraded or injured resources of the Reserve;

(5) Research, monitoring, and assessment of the Reserve;

(6) Education and outreach about the Reserve and its resources and efforts to conserve them;

(7) Enforcement and surveillance for the Reserve, including the use of new technologies and coordination with the United States Coast Guard and other relevant agencies;

(8) Identification and coordination with Native Hawaiian interests, regarding culturally significant, noncommercial subsistence, cultural, and religious uses and locations within the Reserve;

(9) Identification of potential tourism, recreational, and commercial activities within the Reserve and actions necessary to ensure that these activities do not degrade the Reserve's resources or diminish the Reserve's natural character;

(10) Use of vessel monitoring systems for any vessel entering or transiting the Reserve, if warranted. To this end, the Secretary in consultation with the Department of State, United States Coast Guard, and the Department of Defense, shall evaluate the need for the establishment of vessel monitoring systems and, if warranted, shall initiate the steps necessary to have the appropriate domestic agencies, and request that the International Maritime Organization, adopt a vessel monitoring system requirement for the Reserve;

(11) Any regulations, in addition to the conservation measures and Reserve Preservation Areas established under this order, that the Secretary determines are necessary to manage the Reserve in accordance with this order; and

(12) Coordination of all relevant activities with the process to designate the Reserve as a National Marine Sanctuary, as provided under paragraph (f) of this section.

(c) Conservation Measures. The Reserve Operations Plan shall also include the





conservation measures in section 7 of this order and the Reserve Preservation Areas in section 8 of this order.

(d) Memorandum of Agreement. To further paragraph (b)(1) of this section, and subject to section 10(b) of this order, and in particular to promote coordinated management of the entirety of the shallow areas of the coral reef ecosystem throughout the Northwestern Hawaiian Islands, the Secretary shall work with the Secretary of the Interior and Governor of the State of Hawai'i to enter into one or more memoranda of agreement for the coordinated conservation and management of the Reserve, Midway Atoll and Hawaiian Islands National Wildlife Refuges, and State of Hawai'i submerged lands and waters within the Northwestern Hawaiian Islands.

(e) National Marine Sanctuary. The Secretary shall initiate the process to designate the Reserve as a National Marine Sanctuary pursuant to sections 303 and 304 of the National Marine Sanctuaries Act (16 U.S.C. 1433, 1434). In doing so the Secretary shall supplement or complement the existing Reserve. The Secretary shall, in consultation with the Governor of the State of Hawai'i, determine whether State submerged lands and waters should be included as part of the Sanctuary. In designating and managing the Sanctuary, the Secretary shall consider the advice and recommendations of the Reserve Council established pursuant to paragraph (f) of this section.

(f) Council. After considering input from the Secretary of the Interior and Governor of the State of Hawai'i, the Secretary shall establish a Coral Reef Ecosystem Reserve Council pursuant to section 315 of the National Marine Sanctuaries Act (16 U.S.C. 1445a) to provide advice and recommendations on the Reserve Operations Plan and designation and management of any Sanctuary. The Council shall include:

(1) Three Native Hawaiian representatives, including one Native Hawaiian elder, with experience or knowledge regarding Native Hawaiian subsistence, cultural, religious, or other activities in the Northwestern Hawaiian Islands.

(2) Three representatives from the non-Federal science community with experience specific to the Northwestern Hawaiian Islands and with expertise in at least one of the following areas:

(A) Marine mammal science.

(B) Coral reef ecology.

(C) Native marine flora and fauna of the Hawaiian Islands.

(D) Oceanography.

(E) Any other scientific discipline the Secretary determines to be appropriate.

(3) Three representatives from nongovernmental wildlife/marine life, environmental, and/or conservation organizations.

(4) One representative from the commercial fishing industry that conducts activities in the Northwestern Hawaiian Islands.

(5) One representative from the recreational fishing industry that conducts activities in the Northwestern Hawaiian Islands.

(6) One representative from the ocean-related tourism industry.

(7) One representative from the non-Federal community with experience in education and outreach regarding marine conservation issues.

(8) One citizen-at-large representative.



(9) One representative from the State of Hawai'i as appointed by the Governor.

(10) One representative each, as nonvoting, ex officio members, from the Department of the Interior, United States Coast Guard, Department of Defense, Department of State, the National Marine Fisheries Service, the Hawaiian Islands Humpback Whale National Marine Sanctuary, National Science Foundation, Marine Mammal Commission, and Western Pacific Regional Fishery Management Council.

(g) Report. The Secretary shall provide a progress report on the implementation of this order to the Chair of the Council on Environmental Quality within 1 year from the date of this order.

Section 6. Area of the Reserve. The Reserve includes the waters and submerged lands of the Northwestern Hawaiian Islands as follows:

(a) The seaward boundary of the Reserve is 50 nmi from the approximate center geographical positions of Nihoa Island, Necker Island, French Frigate Shoals, Gardner Pinnacles, Maro Reef, Laysan Island, Lisianski Island, Pearl and Hermes Reef, Midway Atoll, and Kure Island. Where the areas are not contiguous, parallel lines drawn tangent to and connecting those semicircles of the 50 nmi areas that lie around such areas shall delimit the remainder of the Reserve.

(b) The inland boundary of the Reserve around each of the areas named in subparagraph (a) of this section is the seaward boundary of Hawai'i State waters and submerged lands, and the seaward boundary of the Midway Atoll National Wildlife Refuge, as appropriate.

(c) The Reserve boundary is generally depicted on the map attached to this order. The Secretary, after consultation with the Governor of the State of Hawai'i, may make technical modifications to the boundary of the Reserve, including providing straight-line boundaries for the Reserve for clarity and ease of identification, as appropriate.

Section 7. Protection and Conservation Measures. The conservation measures in this section apply throughout the Reserve.

(a) (1) Commercial Fishing. All currently existing commercial Federal fishing permits and current levels of fishing effort and take, which also includes the non-permitted level of trolling for pelagic species by currently permitted bottom fishers, as determined by the Secretary and pursuant to regulations in effect on December 4, 2000, shall be capped as follows:

(A) No commercial fishing may occur in Reserve Preservation Areas pursuant to section 8 of this order;

(B) There shall be no increase in the number of permits of any particular type of fishing (such as for bottomfishing) beyond the number of permits of that type in effect the year preceding the date of this order;

(C) The annual level of aggregate take under all permits of any particular type of fishing may not exceed the aggregate level of take under all permits of that type of fishing as follows:

(1) Bottomfishing--the annual aggregate level for each permitted bottomfisher shall be that permittee's individual average taken over the 5 years preceding December 4, 2000, as determined by the Secretary, provided that the Secretary, in further-





ance of the principles of the reserve, may make a one- time reasonable increase to the total aggregate to allow for the use of two Native Hawaiian bottomfishing permits;

(2) All other commercial fishing--the annual aggregate level shall be the permittee's individual take in the year preceding December 4, 2000, as determined by the Secretary.

(D) There shall be no permits issued for any particular type of fishing for which there were no permits issued in the year preceding the date of this order; and

(E) The type of fishing gear used by any permit holder may not be changed except with the permission of the Secretary, as provided under paragraph 3 of this section.

(F) Trolling for pelagic species shall be capped based on reported landings for the year preceding December 4, 2000.

(2) Recreational Fishing. All currently existing (preceding the date of this order) levels of recreational fishing effort, as determined by the Secretary and pursuant to regulations in effect on the day of this order, shall be capped (i.e., no increase of take levels or levels of fishing effort, species targeted, or change in gear types) throughout the Reserve. However, fishing is further restricted as provided in section 8 of this order.

(3) The Secretary, after consultation with the Secretary of the Interior and Governor of the State of Hawai'i, and after public review and comment and consideration of any advice or recommendations of the Reserve Council and Western Pacific Regional Fishery Management Council, may further restrict the fishing activities under subparagraphs (a)(1) and (a)(2) of this section if necessary to protect Reserve resources, or may authorize or require alternate gear types if such gear would offer equal or greater protection for Reserve resources.

(b) In addition to the conservation measures in paragraph (a) of this section, the following activities are prohibited throughout the Reserve:

(1) Exploring for, developing, or producing oil, gas, or minerals;

(2) Having a vessel anchored on any living or dead coral with an anchor, an anchor chain, or an anchor rope when visibility is such that the seabed can be seen;

(3) Drilling into, dredging, or otherwise altering the seabed; or constructing, placing, or abandoning any structure, material, or other matter on the seabed, except as an incidental result of anchoring vessels;

(4) Discharging or depositing any material or other matter into the Reserve, or discharging or depositing any material or other matter outside the Reserve that subsequently enters the Reserve and injures any resource of the Reserve, except:

(A) fish parts (i.e., chumming materia or bait) used in and during fishing operations authorized under this order;

(B) biodegradable effluent incident to vessel use and generated by a marine sanitation device in accordance with section 312 of the Federal Water Pollution Control Act, as amended;

(C) water generated by routine vessel operations (e.g., deck wash down and graywater as defined in section 312 of the Federal Water Pollution Control Act), excluding oily wastes from bilge pumping; or

(D) cooling water from vessels or engine exhaust; and.

(5) Removal, moving, taking, harvesting, or damaging any living or nonliving Reserve resources, except as provided under paragraph (a) of this section and sections 8(a) and 9 of this order.

(c) The Secretary may conduct, or authorize by permit the activities listed in subpara-



graphs (b)(3)-(5) of this section to the extent that they are necessary for research, monitoring, education, or management activities that further the Management Principles of section 4 of this order.

#### Section 8. Reserve Preservation Areas.

(a) To further protect Reserve resources, the following areas are hereby established as Reserve Preservation Areas until some or all are made permanent after adequate public review and comment, within which all activities referred to in paragraph (b) of this section are prohibited.

(1) From the seaward boundary of Hawai'i State waters and submerged lands to a mean depth of 100 fathoms (fm) around:

(A) Nihoa Island, provided that commercial bottomfishing and commercial and recreational trolling for pelagic species in accordance with the requirements of sections 7(a)(1) and 7(a)(2) of this order, respectively, shall be allowed to continue seaward of a mean depth of 25 fm, unless and until the Secretary determines otherwise after adequate public review and comment;

(B) Necker Island, provided that commercial bottomfishing and commercial and recreational trolling for pelagic species in accordance with the requirements of sections 7(a)(1) and 7(a)(2) of this order, respectively, shall be allowed to continue seaward of a mean depth of 25 fm, unless and until the Secretary determines otherwise after adequate public review and comment;

(C) French Frigate Shoals;

(D) Gardner Pinnacles, provided that commercial bottomfishing and commercial and recreational trolling for pelagic species in accordance with the requirements of sections 7(a)(1) and 7(a)(2) of this order, respectively, shall be allowed to continue seaward of a mean depth of 25 fm, unless and until the Secretary determines otherwise after adequate public review and comment;

(E) Maro Reef, provided that commercial bottomfishing and commercial and recreational trolling for pelagic species in accordance with the requirements of sections 7(a)(1) and 7(a)(2) of this order, respectively, shall be allowed to continue seaward of a mean depth of 25 fm, unless and until the Secretary determines otherwise after adequate public review and comment;

(F) Laysan Island, provided that commercial bottomfishing and commercial and recreational trolling for pelagic species in accordance with the requirements of sections 7(a)(1) and 7(a)(2) of this order, respectively, shall be allowed to continue seaward of a mean depth of 50 fm, unless and until the Secretary determines otherwise after adequate public review and comment;

(G) Lisianski Island, provided that commercial bottomfishing and commercial and recreational trolling for pelagic species in accordance with the requirements of sections 7(a)(1) and 7(a)(2) of this order, respectively, shall be allowed to continue seaward of a mean depth of 25 fm, unless and until the Secretary determines otherwise after adequate public review and comment;

(H) Pearl and Hermes Atoll; and

(I) Kure Atoll.

(2) Twelve nautical miles around the approximate geographical centers of:

(A) The first bank immediately east of French Frigate Shoals;





(B) Southeast Brooks Bank, which is the first bank immediately west of French Frigate Shoals, provided that the closure area shall not be closer than approximately 3 nmi of the next bank immediately west;

(C) St. Rogatien Bank, provided that the closure area shall not be closer than approximately 3 nmi of the next bank immediately east, provided that commercial bottomfishing and commercial and recreational trolling for pelagic species in accordance with the requirements of sections 7(a)(1) and 7(a)(2) of this order, respectively, shall be allowed to continue, unless and until the Secretary determines otherwise after adequate public review and comment;

(3) Twelve nautical miles around the approximate geographical centers of

(A) The first bank west of St. Rogatien Bank, east of Gardner Pinnacles, provided that commercial bottomfishing and commercial and recreational trolling for pelagic species in accordance with the requirements of sections 7(a)(1) and 7(a)(2) of this order, shall be allowed to continue for a period of 5 years from the date of this order; and

(B) Raita Bank, provided that commercial bottomfishing and commercial and recreational trolling for pelagic species in accordance with the requirements of sections 7(a)(1) and 7(a)(2) of this order, shall be allowed to continue for a period of 5 years from the date of this order; and

(C) Provided that both banks described above in (3)(A) and (3)(B) shall only continue to allow commercial bottomfishing and commercial and recreational trolling for pelagic species after the 5-year time period if it is determined that continuation of such activities will have no adverse impact on the resources of these banks.

(D) Pioneer Bank, provided that commercial bottomfishing and commercial and recreational trolling for pelagic species in accordance with the requirements of sections 7(a)(1) and 7(a)(2) of this order, respectively, shall be allowed to continue, unless and until the Secretary determines otherwise after adequate public review and comment.

(b) Activities Prohibited Within Reserve Preservation Areas.

(1) In addition to the conservation measures in section 7 of this order, which are applicable to the entire Reserve, the following activities are prohibited within the Reserve Preservation Areas listed in paragraph (a) of this section, except as expressly otherwise stated in this paragraph and sections (8)(a) and 9 of this order:

(A) Commercial and recreational fishing;

(B) Anchoring in any area that contains available mooring buoys, or anchoring outside an available anchoring area when such area has been designated by the Secretary;

(C) Any type of touching or taking of living or dead coral;

(D) Discharging or depositing any material or other matter except cooling water or engine exhaust; and

(E) Such other activities that the Secretary identifies after adequate public review and comment, and after consideration of any advice and recommendations of the Reserve Council.

(2) Notwithstanding the prohibitions in this paragraph, the Secretary may conduct, or authorize by permit, research, monitoring, education, or management activities within any Reserve Preservation Area that further the Management Principles of section 4 of this order.

(3) The Reserve Preservation Areas in this section are approximated using fathoms. The Secretary will develop straight line boundaries based on longitude and latitude coordinates to encompass each Reserve Preservation Area, to provide for clarity and ease of identifi-



cation. The Secretary may make technical modifications to any such boundaries.

**Section 9. Native Hawaiian Uses.** Native Hawaiian noncommercial subsistence, cultural, or religious uses may continue, to the extent consistent with existing law, within the Reserve and Reserve Preservation Areas identified under section 8 of this order. The Secretary shall work with Native Hawaiian interests to identify those areas where such Native Hawaiian uses of the Reserve's resources may be conducted without injury to the Reserve's coral reef ecosystem and related marine resources and species, and may revise the areas where such activities may occur after public review and comment, and consideration of any advice and recommendations of the Reserve Council.

**Section 10. National Wildlife Refuges.**

(a) The Secretary of the Interior, in managing, through the U.S. Fish and Wildlife Service the Hawaiian Islands and Midway Atoll National Wildlife Refuges pursuant to the National Wildlife Refuge System Administration Act (16 U.S.C. 668dd-668ee) and other applicable laws, shall follow the Management Principles of section 4 of this order, to the extent consistent with applicable law.

(b) Wherever the Reserve overlaps the Hawaiian Islands National Wildlife Refuge, the Reserve shall be managed to supplement and complement management of the Refuge to ensure coordinated conservation and management of the Reserve and the Refuge, consistent with the purposes and policies of the National Marine Sanctuaries Act, the National Marine Sanctuaries Amendments Act of 2000, and this order, and the authorities of the U.S. Fish and Wildlife Service under the National Wildlife Refuge System Administration Act (16 U.S.C. 668dd-668ee) and other laws with respect to management of the Refuge. Nothing in this order shall enlarge or diminish the jurisdiction or authority of the Secretary or Secretary of the Interior in managing the Reserve or Refuge, respectively.

(c) The Secretary of the Interior, through the U.S. Fish and Wildlife Service, shall coordinate with the Secretary and the Governor of the State of Hawai'i, as provided under section 5(b) of this order, to ensure coordinated protection and management among the Reserve, Refuges, and State, consistent with relevant authorities.

**Section 11. Administration and Judicial Review.**

(a) **International Law.** Management of the Reserve and any regulations issued pursuant thereto and all other provisions of this order shall be applied consistently with the 1983 Presidential Proclamation on the Exclusive Economic Zone, the 1988 Presidential Proclamation on the Territorial Sea, and the 1999 Presidential Proclamation on Contiguous Zone and in accordance with generally recognized principles of international law, and with the treaties, conventions, and other agreements to which the United States is a party. The Secretary shall consult with the Department of State in implementing this order.

(b) **Agency Responsibilities.** All Federal agencies whose actions may affect the Reserve and any National Marine Sanctuary established by the Secretary pursuant to this order shall carry out such actions in accordance with applicable laws, regulations and Executive Orders, including Executive Orders 13089 of June 11, 1998, and 13158 of May 26, 2000.





(c) National Security and Emergency Actions. Consistent with applicable law, nothing in this order is intended to apply to military activities (including those carried out by the United States Coast Guard), including military exercises, conducted within or in the vicinity of the Reserve, consistent with the requirements of Executive Orders 13089 of June 11, 1998, and 13158 of May 26, 2000. Further, nothing in this order is intended to restrict the Department of Defense from conducting activities necessary during time of war or national emergency, or when necessary for reasons of national security as determined by the Secretary of Defense, consistent with applicable law. In addition, consistent with applicable law, nothing in this order shall limit agency actions to respond to emergencies posing an unacceptable threat to human health or safety or to the marine environment and admitting of no other feasible solution.

(d) United States Coast Guard. Nothing in this order is intended to limit the authority of the United States Coast Guard to enforce any Federal law, or install or maintain aids to navigation.

(e) Funding. This order shall be carried out subject to the availability of appropriated funds and to the extent permitted by law.

(f) Territorial Waters. Nothing in this order shall enlarge or diminish the jurisdiction or authority of the State of Hawai'i or the United States over submerged or other lands within the territorial waters off the coast of Hawai'i.

(g) Judicial Review. This order does not create any right or benefit, substantive or procedural, enforceable in law or equity by a party against the United States, its agencies, its officers, or any person.



## Environmental Assessment for the Reserve Operations Plan for the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve

### Purpose and Need For This Environmental Assessment



#### National Marine Sanctuary Program

The National Oceanic and Atmospheric Administration's (NOAA) National Marine Sanctuary Program (NMSP) is a national system of 13 sites that protect over 13,000 square nautical miles of marine resources, and range in all sizes and shapes from 0.25 to 4,024 square nautical miles. The mission of the NMSP is to serve as the trustee for this system of marine protected areas, and to conserve, protect, and enhance their biodiversity, ecological integrity, and cultural legacy. Its goals are appropriate to the unique diversity contained within individual sites. They may include restoring and rebuilding marine habitats or ecosystems to their natural condition or monitoring and maintaining already healthy areas.

The National Marine Sanctuaries Act (NMSA) (16 U.S.C. 1431 *et seq.*) authorizes the Secretary of Commerce to designate and manage areas of the marine environment with nationally significant aesthetic, ecological, historical, or recreational values as National Marine Sanctuaries. The primary objective of this law is to protect marine resources, such as coral reefs, sunken historical vessels or unique habitats, while facilitating all "compatible" public and private uses of those resources. Sanctuaries, frequently compared to underwater parks, are managed according to Management Plans, prepared by the NMSP on a site-by-site basis.

#### Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve

The expansive coral reef ecosystem of the Northwestern Hawaiian Islands encompasses an array of scientific and historic objects found nowhere else on Earth. The coral reefs are the foundation of an ecosystem that hosts a distinctive array of marine mammals, fish, sea turtles, birds, and invertebrates, including species that are endemic, rare, threatened, and endangered.

On December 4, 2000, Executive Order 13178 was issued, establishing the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve (Reserve), to be managed by the Secretary of Commerce (Secretary). The Reserve was established pursuant to the National Marine Sanctuaries Amendments Act of 2000 (Act). The Executive Order contains a number of conservation measures which restrict certain activities throughout the Reserve. As part of the establishment of the Reserve, the Executive Order also created fifteen Reserve Preservation Areas (RPAs) in which all consumptive or extractive uses are prohibited, with limited exceptions.

The area designated as the Reserve is 131,800 square statute miles or 99,500 square nautical miles. It is approximately 1,200 statute mile long and 100 miles wide. The Reserve includes the marine waters and submerged lands of the Northwest Hawaiian Islands and is adjacent to the seaward boundary of Hawai'i State waters and submerged lands, and the Midway Atoll National Wildlife Refuge. In addition, the Reserve includes the Hawaiian Island National Wildlife Refuge, to the extent that it extends beyond Hawai'i State Waters.





## Need For This Environmental Assessment

The Executive Order establishing the Reserve directs the Secretary of Commerce to prepare a Reserve Operations Plan to govern the management of the Reserve pending its designation as a National Marine Sanctuary. While the establishment of the Reserve and the measures in the Executive Order are not subject to NEPA, an Environmental Assessment is being completed to evaluate the potential environmental impacts of the actions proposed in the Reserve Operations Plan to implement the Executive Order.

### Description of Alternatives

#### Alternative A: Take No Action

Under this alternative, NOAA would not prepare a Reserve Operations Plan to govern the management of the Reserve pending its designation as a National Marine Sanctuary. Thus, the Executive Order would stand alone without any additional descriptions of issues, needs, projects, or programs to implement the Reserve and mandates of the Executive Order. For example, there would be no description of how the Reserve will participate in addressing the cleanup and prevention of marine debris, as directed by the Executive Order.

#### Alternative B: Propose the Reserve Operations Plan (Preferred)

This alternative would fulfill the directive of the Executive Order to prepare a Reserve Operations Plan to govern the management of the Reserve. The Reserve Operations Plan focuses on certain priority issues (as listed in the Executive Order), providing detailed descriptions of issues, needs, projects, and programs, and developing a comprehensive implementation approach for the Reserve. Full descriptions of the actions proposed to be taken under this plan are contained in the "Action Plan" section, starting on page 27 of the Reserve Operations Plan, summarized here as:

- **Operations:** includes interagency coordination, activity and area identification, Reserve/Sanctuary Advisory Council operations, development of fishing caps, development of permitting procedures, and infrastructure development.
- **Education:** encompasses all education, outreach, and interpretive projects.
- **Cultural Resources:** consists of all projects related to Native Hawaiian culture, uses, and locations.
- **Research and Monitoring:** contains all projects related to research and monitoring.
- **Mapping:** covers all projects related to developing charts and maps of the NWHI.
- **Restoration:** contains projects related to restoration.
- **Emergency Response and Damage Assessment:** covers projects related to contingency planning and response.
- **Marine Debris:** consists of projects related to the removal of marine debris from the NWHI.
- **Enforcement:** includes air and sea support for existing enforcement operations and expansion of a vessel monitoring system.
- **Designation:** covers all projects related to the Sanctuary designation process.



## Description of the Affected Environment



### Natural Resources

#### **A Unique Coral Ecosystem**

The healthy and extensive coral reefs of the Northwestern Hawaiian Islands encompass over 11,000 square kilometers of coral reef habitat. This represents 50%-70% of all coral reefs in U.S. waters (Miller and Crosby, 1998). Pearl and Hermes Reef has the most extensive nearshore reefs (less than three miles from shore); Gardner Pinnacles, Maro Reef, and Necker Island, the most extensive offshore reefs.

The reefs are comprised of forty-seven species of hard coral and eight species of soft coral (Brainard, pers comm), a diversity and species richness that rivals that of the main Hawaiian Islands. Compared to other regions in the world, the diversity of coral species is low and is often attributed to the isolation of this island chain (Grigg, 1983; Maragos, 1977). There are exceptionally high numbers of endemic corals.

Within the Northwestern Hawaiian Islands, the reefs differ in coral cover and species organization. Coral cover gradually declines to the northwest due to slower growth rates and the increased frequency of storm disturbances (Grigg, 1983). Past studies reveal mean coral cover ranging from 8% to 69% among the islands (Green, 1997). Coral species in the Northwestern Hawaiian Islands are slower-growing than in most areas.

Climatic events, on an interannual scale, may play an important role in the ecosystem productivity of the northwestern chain. Declines in the productivity of seabirds, monk seals, reef fishes, and chlorophyll have been documented from the early 1980s to the present, and have been attributed, in part, to these climatic events (Friedlander, 1996). While severe tropical storms or typhoons are rare, winter storms are common, resulting in a noticeable increase in winds and high seas that impact the reef system.

This vast coral reef ecosystem supports a wide array of marine species. While more than 7,000 marine species have been recorded in the Hawaiian Islands, as many as half of them exist only in the Northwestern Hawaiian Islands (Hawai'i DLNR, 2000). The coral reefs are the foundation of an expansive ecosystem that hosts an interdependent association of vertebrates (monk seals, reef and bottom fish, turtles, birds, sharks), invertebrates (corals, anemones, jellyfishes, mollusks, shrimps, crabs, lobsters, sea urchins, sea stars, sea cucumbers), sea grasses, and algae.

#### **Importance to Marine Mammals and Sea Turtles**

The Northwestern Hawaiian Islands ecosystem also plays an important role in supporting a host of marine mammals and sea turtles. Like the Hawaiian monk seals, Hawaiian spinner and bottlenose dolphins are resident species that occur within this ecosystem during the entire year. Transient species such as spotted dolphins, humpback whales, and numerous others occur seasonally within twenty nautical miles of the Northwestern Hawaiian Island archipelago.





## Hawaiian Monk Seal

Nearly the entire world population of endangered Hawaiian monk seals is found in the Northwestern Hawaiian Islands, where they have been recorded since the late 1950s. Due to serious declines in the population, the Hawaiian monk seal was listed as endangered throughout its range in 1976.

Comparative studies between monk seal populations in the 1980s and the 1950s demonstrated a 50% population decline. As a result, the National Marine Fisheries Service (NMFS) designated critical habitat for the Hawaiian monk seal from shore out to twenty fathoms in ten areas of the Northwestern Hawaiian Islands in May 1988. NMFS believes these areas require special management consideration or protection now and in the reasonably foreseeable future.

The size of the monk seal population has remained essentially unchanged since 1993. Today, NMFS estimates that there are approximately 1,400 animals remaining throughout the island chain.

New research methods are revealing more information regarding foraging patterns. It is now known that Hawaiian monk seals typically range well outside of the currently designated critical habitat, foraging to depths of 500 meters for prey items associated with precious gold coral beds found in deep waters (WRPFMC, 2000).

## Sea Turtles

This ecosystem is important nesting habitat for the threatened green sea turtle. Significant nesting sites exist on French Frigate Shoals and to a lesser degree on Laysan Island, Lisianski Island, and Pearl and Hermes Reef. The green sea turtle occupies three habitat types: open beaches, open sea, and feeding grounds in shallow, protected waters. Upon hatching, the young turtles gradually crawl from the beach, over shallow reef areas and extensive shoal areas to the open ocean. When their shells grow 8-10 inches long, they move to shallow feeding grounds over coral reefs and rocky bottoms (USFWS, 2000). Age at sexual maturity is estimated at 20-50 years.

The green sea turtle was listed as threatened in 1978. Although the population has increased significantly since the 1970s, the total number of nesting females is still well below the historical levels of the late 1800s (NMFS, 2000).

Scattered low-level nesting occurs throughout the Hawaiian archipelago, but over 90 percent of nesting occurs at French Frigate Shoals. The shallow waters within French Frigate Shoals have been identified as inter-nesting habitat for adult females and also adult males that migrate to breed at this key site (Dizon and Balazs, 1982). This amounts to approximately 200-700 nesting females annually (Threatened, 2001). Research indicates that the range of adult green turtles using French Frigate Shoals is limited to the 2,400-kilometer stretch of the Hawaiian Archipelago (Balazs 1976, 1983) and to Johnston Atoll immediately to the South, where algal foraging pastures occur (Balazs, 1985). While the green sea turtle is a resident species, the leatherback, olive ridley, and loggerhead sea turtles are considered transient species that occur seasonally in this expansive area.





## Importance to Fishes

The Northwestern Hawaiian Islands support numerous marine, reef, and shore fish. Some fish species commonly found in the Northwestern Hawaiian Islands, such as the slingjaw wrasse and the knifefish, are rare elsewhere in the archipelago (Friedlander, 1996). The total number of species in the region is unknown, but initial sampling indicates the presence of approximately 260 species (Randall et al., 1993).

Structurally, fish communities in the Northwestern Hawaiian Islands are dominated by apex predators, such as sharks and jacks. In addition, abundance and biomass estimates indicate that the reef community is characterized by fewer herbivores, such as surgeonfishes, and more carnivores, such as damselfishes, goatfishes, and scorpionfishes (Parrish et al., 1985). The Northwestern Hawaiian Islands species are considered integral to fisheries in the main Hawaiian Islands as possible sources to replenish commercial and recreational fish and lobster populations.

## Importance to Seabirds, Waterbirds, and Land Birds

The Northwestern Hawaiian Islands are home to 14 million nesting seabirds and breeding species, many of which rely on the coral reef ecosystem for food and other habitat needs. Four endangered endemic bird species which are not seabirds (Laysan duck, Laysan finch, Nihoa finch, and Nihoa millerbird) breed on the islands, along with 14 million seabirds of 18 other species.

## Importance to Invertebrate Communities

The coral reefs of the Northwestern Hawaiian Islands support diverse communities of benthic macroinvertebrates. Sixty-three species of macroinvertebrates, largely mollusks, echinoderms, and crustaceans have been documented. Spiny and slipper lobsters are an important commercial fishery, but are also a vital link in the trophic food web of many other organisms in the nearshore coral reef ecosystem (Friedlander, 1996).

Algae are important to Hawai'i's ecology as a food source for a number of reef organisms, and also serve as settling and attachment sites for small and cryptic reef species. Some 205 species of marine algae, including a number of newly identified deepwater species that are relatively unknown in the area, have been identified in the Northwestern Hawaiian Islands (Abbott, 1989).

## Physical, Chemical, and Geological Description

Millions of years ago, a series of volcanic land masses emerged from the sea to form the Hawaiian Archipelago, among the longest and most isolated chains of tropical islands in the world. The Northwestern Hawaiian Islands constitute the northwest two-thirds of this vast chain. Moving northwest from the main Hawaiian Islands, this 1,200 mile stretch of emergent lands is characterized as small rocky islands, atolls, coral islands and reefs, which become progressively older and generally smaller (Wells, 1988).

At the southeast end is Nihoa Island, the largest of the volcanic islands, which is 131 miles





from Ni'ihau in the main Hawaiian Islands. The island's two peaks and steep sea cliffs are clearly visible from a distance. The northern edge is a steep cliff made up of successive layers of lava through which numerous volcanic extrusions (dikes) are visible. Nihoa's submergent coral reef habitat totals approximately 142,000 acres.

Next in the chain is Necker Island, a dry volcanic island shaped like a fish hook. More than 380,000 acres of coral reef habitat are associated with the island of Necker. French Frigate Shoals, the largest atoll in the chain, is an 18-mile wide, crescent shaped atoll. The lagoon contains two exposed volcanic rocks and 12 low, sandy islets.

About 230,000 acres of coral reef habitat are associated with French Frigate Shoals. Surrounding French Frigate Shoals are a series of submerged banks. An unnamed bank is located just to the east. To the west is South East Brooks Bank, St. Rogatien Bank, and another unnamed bank.

Continuing to the northwest are the Gardner Pinnacles that consist of two peaks of volcanic rock. The frosted appearance of the peaks (due to guano) indicates their importance as a roosting site and breeding habitat for 12 species of tropical seabirds. Approximately 600,000 acres of coral reef habitat surround these pinnacles.

Maro Reef is a largely submerged atoll with less than 1 acre of emergent land but is surrounded by nearly half a million acres of submerged coral reef habitat. Laysan is the largest island in the chain, with about 1,000 acres of land. It is well vegetated aside from its sandy dunes and contains a hypersaline lake, which is one of only five natural lakes in the State of Hawai'i. Laysan's coral reef habitat is approximately 145,000 acres.

Lisianski Island is a low sand and coral island, with 400 acres of land. It lies at the northern end of a large reef bank, spanning 65 square miles and totaling 310,000 acres. Pearl and Hermes Reef is a large atoll with several small islets forming about 80 acres of land and almost 200,000 acres of coral reef habitat. The islets are periodically washed over when winter storms pass through the area.

Kure Atoll is the northernmost coral atoll in the world. The atoll is nearly circular with a 6-mile diameter enclosing nearly 200 acres of emergent land. The outer reef nearly forms a circle around the lagoon except for passages to the southwest. The only permanent land in the atoll is crescent-shaped Green Island, located near the fringing reef in the southeastern part of the lagoon. Almost 80,000 acres of coral reef habitat are found here.

Kure Atoll is known by scientists as the "Darwin Point" where the rate of coral growth barely keeps pace with the rate of submergence and erosion of the volcanic islands. North of Kure, where growth rates are even slower, drowned atolls form the Emperor Seamounts, which extend all the way to the Kamchatka Peninsula in Russia (Grigg, 1982).

Due to their active volcanism, isolation, and linear progression, the Northwestern Hawaiian Islands, together with the main Hawaiian Islands, represent a nearly perfect "textbook" example of the evolution of islands and reefs (Gulko, 1998). The Northwestern Hawaiian Islands are even more exemplary because they have been subjected only to minimal human disturbance.



## Cultural Significance

In addition to the wealth of natural resources, this area is closely tied to the cultural heritage of Hawai'i and more broadly to U.S. history. Numerous artifacts found on Nihoa Island establish a close relationship with the Hawaiian culture of the main Hawaiian Islands. As many as 175 people are estimated to have lived there during prehistoric times. At Nihoa Island's 88 archaeological sites, there is evidence of habitation, religious ceremonies, agriculture, and burials.

Artifacts on Necker Island (known to the Hawaiians as Moku Manamana) suggest that the island was used in prehistoric times, primarily for religious ceremonies. Of the 52 known archaeological sites, 33 are religious shrines (Cleghorn, 1988). Many of the temple sites closely resemble those of the Marquesas Islands and Tahiti, possibly establishing a link between this site and early Polynesian cultures. Oral history and identified artifacts demonstrate that these islands have also served as fishing grounds for the people of Hawai'i for centuries. Both Nihoa and Necker Islands are on the National Registry of Historic Places.

During the late 1700s and early 1800s European and American traders called at the larger Hawaiian islands, and 1825 Honolulu had become the most important port in the entire Pacific. Several of the islands were leased for a period of 25 years to the North Pacific Phosphate and Fertilizer Company for guano extraction. Bird skins and feathers were also harvested. Development of land-based, commercial facilities was most significant on Laysan Island, where a small community existed in the 1890s, but harvesting also occurred on Lisianski Island.

Midway was first settled in 1903 by employees of the Commercial Pacific Cable Company. Tons of imported soil and numerous introduced plants significantly altered the landscape. In the 1930s, Pan American Airways used Midway as a resting and refueling station for their Flying Clippers. A weather station was also established on the atoll. The U.S. Navy, as well as other U.S. Government agencies, became interested in the NWHI in the late 1890s and early 1900s. Hawai'i became a United States Territory on April 30, 1900.

The NWHI played a significant role in U.S. history during World War II. The Navy built a base at Midway Atoll, dredging the reef to form a channel and harbor. Eastern Island had the main airfield in the early days of the war, while submarine and seaplane operations were concentrated on Sand Island. Together, these areas comprised a vital center for submarine and seaplane operations (Hawai'i DLNR, 2000).

In June 1942, the Battle of Midway took place in the seas to the north of this Pacific outcrop. This battle proved to be the most decisive U.S. victory, and was the turning point of World War II in the Pacific. Four Japanese aircraft carriers were sunk, and Japanese forces were on the defensive for the remainder of the war.

Meanwhile, the U.S. Coast Guard occupied Tern (part of French Frigate Shoals) and Eastern Islands from 1944 until the 1970s and operated long range navigational aids (LORAN) stations. The Coast Guard also operated a LORAN station at Kure Atoll, which was decommissioned in 1992.





In recent years, the Navy has phased out its presence, making way for the Midway Atoll National Wildlife Refuge, which assumed full custody and accountability following the Navy's departure. Today, Midway Atoll is the only remote island National Wildlife Refuge open to public visitation (Hawai'i DLNR, 2000). This effort complements President Theodore D. Roosevelt's legacy of the Hawaiian Islands National Wildlife Refuge, which encompasses the eight easternmost islands in the chain and the surrounding reefs, for the protection of seabirds.

### Human Activities

There are few human activities in the Reserve area. None of the islands are inhabited. Researchers occasionally occupy the islands for limited periods of time and take part in research expeditions. Another use is ecotourism, focused primarily on and around Midway Atoll. Commercial fishing is the predominant activity in Reserve waters.

Currently, several fisheries in the NWHI are managed under Fishery Management Plans developed by the WPRFMC and approved by NMFS. The bottomfish fishery has two limited entry zones, the Ho'omalau Zone, which ranges from Kure to French Frigate Shoals, with seven permits and the Mau Zone, which ranges from French Frigate Shoals to Nihoa, with ten permits.

The spiny and slipper lobster fishery is currently closed by NMFS, pending resolution of stock assessment issues. In the NWHI, this fishery has historically accounted for more than 90% of the total permitted commercial lobster catch in the Hawaiian Islands (Friedlander, 1996). This limited-entry lobster fishery was capped at 15 permits. The fishery cannot reopen until a Section 7 Endangered Species Act consultation is accepted by the court.

The pelagic longline fishery is a limited-entry system as well with a maximum of 164 permits, about 100 of which are active. These vessels are prohibited from operating in a 100-nautical-mile corridor in the NWHI to protect monk seals and therefore do not fish in Reserve waters. Troll and handline fishing for pelagic species is allowed within the NWHI by NMFS and the State of Hawai'i.

The precious coral fishery is managed under a Fishery Management Plan, but the fishery has not been active in the NWHI. However, exploratory beds have been identified by the WPRFMC for potential future harvest, excluding gold corals, which have been recognized as foraging habitat for the endangered Hawaiian monk seals.

The WPRFMC has recently developed a Coral Reef Ecosystem Fishery Management Plan that has been submitted to NMFS.



## Impacts of Alternatives



### Alternative A: Take No Action

#### Environmental Impacts

Under this alternative, no Reserve Operations Plan would be prepared and the Executive Order would stand alone as the management document for the Reserve. This action would be in direct conflict with the clear mandate of the Executive Order to develop a Reserve Operations Plan.

There would be no environmental impacts beyond impacts expected from the establishment of the Reserve, a separate and distinct action done by Executive Order. Taking no action and not developing a Reserve Operations Plan, however, would result in there not being a more detailed assessment and plan for coordination of management activities in the Reserve, nor would there be a plan for additional programs that could be developed such as those for education and outreach, or permitting. Additionally, there would be no plan to develop an infrastructure to support the Reserve, nor would there be an Operations Plan on which to build the Sanctuary Management Plan during the designation process.

#### Socioeconomic Impacts

Taking no action would result in no additional socioeconomic impacts than those already associated with the creation of the Reserve. There would be no outlay of funds to develop infrastructure, education, research or other programs.

### Alternative B: Propose this Reserve Operations Plan (Preferred)

#### Environmental Impacts

Development of the Reserve Operations Plan is not expected to have adverse impacts on the environment. The Reserve Operations Plan lays out a series of action plans focusing on management of priority issues pending the designation of a National Marine Sanctuary.

Full descriptions of the actions proposed to be taken under the draft Reserve Operations Plan are contained in the "Action Plan" section, starting on page 27 of the draft Reserve Operation Plan, summarized here as:

- **Operations:** includes interagency coordination, activity and area identification, Reserve/Sanctuary Advisory Council operations, development of fishing caps, development of permitting procedures, and infrastructure development.
- **Education:** encompasses all education, outreach, and interpretive projects.
- **Cultural Resources:** consists of all projects related to Native Hawaiian culture, uses, and locations.
- **Research and Monitoring:** contains all projects related to research and monitoring.
- **Mapping:** covers all projects related to developing charts and maps of the NWHI.
- **Restoration:** contains projects related to restoration.
- **Emergency Response and Damage Assessment:** covers projects related to contingency planning and response.





- **Marine Debris:** consists of projects related to the removal of marine debris from the NWHI.
- **Enforcement:** includes air and sea support for existing enforcement operations and expansion of a vessel monitoring system.
- **Designation:** covers all projects related to the Sanctuary designation process.

Preparing the Reserve Operations Plan would allow NOAA and its management partners to do a more detailed assessment and coordination of management activities in the Reserve. Most of the action plans provide for activities that are expected to result in beneficial long-term environmental impacts through low or no impact short-term activities such as assessments of restoration needs (e.g., Restoration Action Plan); coordination and participation in existing efforts (e.g., Marine Debris Action Plan), development of education and outreach materials such as brochures (e.g., Education and Outreach Action Plan); literature searches and development of a cultural collections database (e.g., Cultural Resources Action Plan), and development of a vessel monitoring system and support an increase in air and sea support (e.g., Enforcement Action Plan).

Activities such as the development of fishing caps, as required under the Executive Order, permitting procedures, and the Sanctuary designation process will be conducted after issuance of the Reserve Operations Plan and will be accompanied by the appropriate NEPA review at that time.

Further, the Reserve Operations Plan provides for the development of infrastructure, including staff. Offices will be established in existing buildings through lease or partnerships, and, therefore, little environmental impact from facility development is expected. The creation of additional programs such as for research, education, and outreach is also provided for; such programs are expected to have no detrimental environmental impacts by their conduct, and have positive benefits by increasing awareness and appreciation for the resources of the NWHI.

### Socioeconomic Impacts

NOAA believes the proposed Reserve Operations Plan will result in no additional socioeconomic impacts than those already associated with the creation of the Reserve. Additional socioeconomic analysis as required under NEPA and other acts and executive orders would be prepared as necessary for specific actions, such as the development of fishing caps called for in the Operations Action Plan. The outlay of funds to develop infrastructure, including the establishment of offices and hiring of staff, is expected to have a small positive influence in local communities around those offices, by the expending of funds on office leasing and furnishing, supplies, local services, and other operational expenses and essentials.



### Finding of No Significant Impact

NOAA has determined that the development of the Reserve Operations Plan will have no additional impacts on the human environment beyond those already entailed by the establishment of the Reserve, a separate and distinct action done by Executive Order. Further, the Reserve Operations Plan is intended to govern management of the Reserve pending the process to designate it as a National Marine Sanctuary. The Sanctuary designation process is a comprehensive, multi-year process that includes preparation of an environmental impact statement and a long-term management plan, which will supersede the Reserve Operations Plan. Because this and other (e.g., fishing caps) additional actions undertaken by NOAA in furtherance of the Executive Order, will all be supported by separate, individual NEPA documentation, and because of the nature of the impacts of the Reserve Operations Plan, as discussed above, NOAA has determined that a finding of no significant impact is appropriate for the preparation of the Reserve Operations Plan.

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Date



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## Appendix 4: Acronyms and Abbreviations

ADA - Americans with Disabilities Act  
DOC - Department of Commerce  
DOI - Department of the Interior  
DOT - Department of Transportation  
GIS - geographic information system  
GSA - General Services Administration  
GPS - global positioning system  
HazMat - hazardous materials  
HIHWNMS - Hawaiian Islands Humpback Whale National Marine Sanctuary  
km - kilometer  
MOU - Memorandum of Understanding  
NEPA - National Environmental Policy Act  
NMFS - National Marine Fisheries Service, NOAA  
nmi - nautical miles  
NMSA - National Marine Sanctuaries Act  
NMSP - National Marine Sanctuary Program  
NOAA - National Oceanic and Atmospheric Administration  
NOS - National Ocean Service  
NWHI - Northwestern Hawaiian Islands  
OAR - Office of Oceanic and Atmospheric Administration, NOAA  
PVS - Polynesian Voyaging Society  
ROP - Reserve Operations Plan  
ROV - remotely operated vehicle  
RPA - Reserve Preservation Areas  
USCG - United States Coast Guard  
USGS - United States Geological Service  
USFWS - United States Fish and Wildlife Service  
VMS - vessel monitoring system  
WPRFMC - Western Pacific Regional Fishery Management Council



